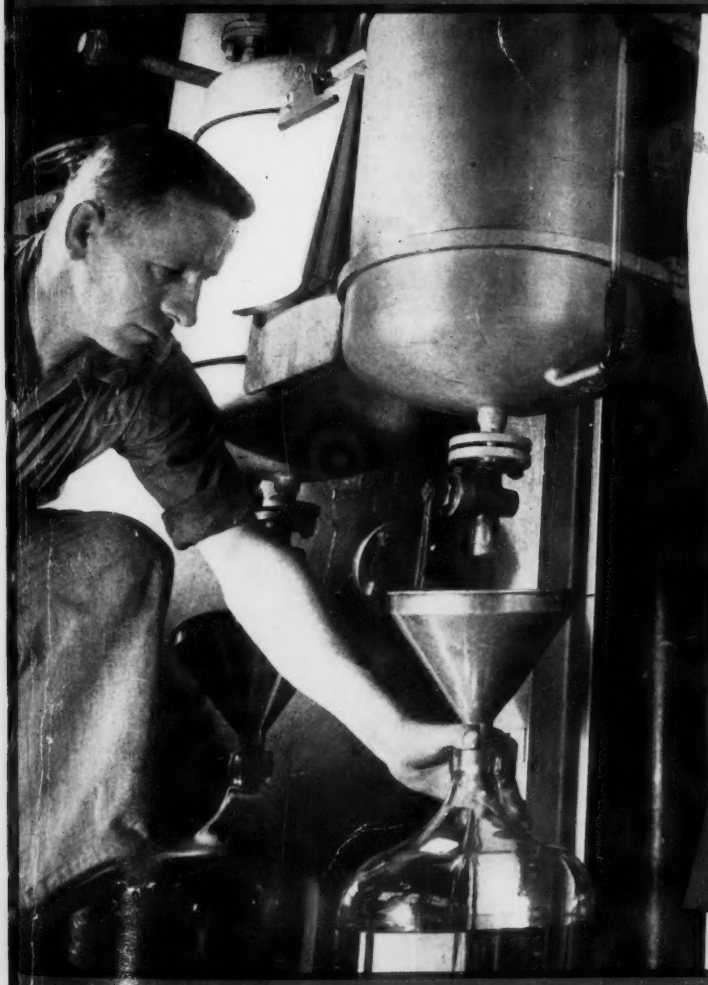
# Soap




## LAST WORD IN DISTILLATION EQUIPMENT

● Improvements in production facilities play an increasingly important role in the never-ending search for product improvement. The equipment shown here is the last word of its type for the distillation of aromatic products. Specially built to Givaudan's exacting requirements for scientifically controlled production on a large scale basis, it is typical of the modern facilities that enable Givaudan to offer consistently higher standards of quality in aromatics for the soap industry.

GIVAUDAN
DELAWANNA, INC.
80 FIFTH AVENUE, NEW YORK, N. Y.


# and Sanitary Chemicals

*FOR PERFUMING and COLORING NAPHTHALENE and PARADICHLORBENZENE*

# COUNT ON COLOROMES*

*(Perfume and color combined)

With Felton Coloromes, you can be certain to produce deodorant blocks and crystals with *lasting fragrance and color!* Your product will continue to please the nose until the final crystal has disappeared.

Try Felton Coloromes without further delay. They are economical in cost . . . and simple to use. Only one easy operation imparts both color and fragrance!

Coloromes are available in a complete assortment of popular perfumes combined with related colors. (Also perfumes without colors). Write for samples today!

# FELTON
## CHEMICAL COMPANY, INC.

*Manufacturers of AROMATIC CHEMICALS, NATURAL ISOLATES, PERFUME OILS, ARTIFICIAL FLOWER and FLAVOR OILS*

**603 JOHNSON AVE., BROOKLYN, N. Y.**

Boston, Mass. 80 Boylston St. | Philadelphia, Pa. 200 So. 12th St. | Sandusky, Ohio 1408 W. Market St. | Chicago, Ill. 1200 N. Ashland Ave. | St. Louis, Mo. 245 Union Blvd. | New Orleans, La. Balter Bldg. | Los Angeles, Calif. 515 S. Fairfax Ave. | San Francisco 512 Washington St

**Stocks carried in principal cities**

# Year OUT—
# Year IN—

We've got the
**WAX** situation
**DOWN**
perfectly!
—in the **PRICE,**
and on the **FLOOR.**

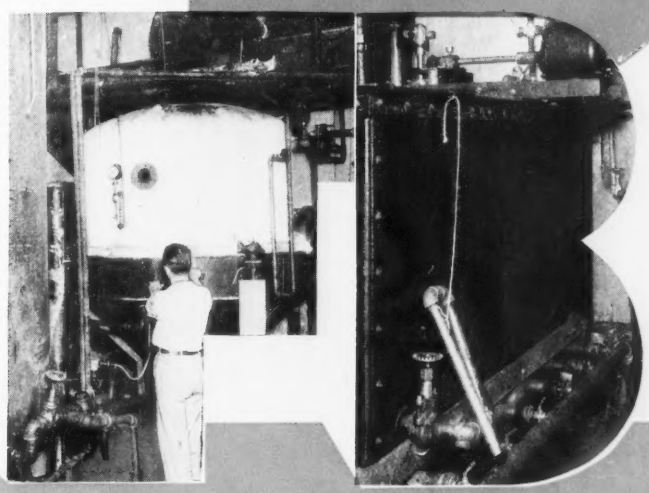
Ask about our new group of low-priced pure carnauba waxes which give you a handy advantage in the floor maintenance field.

The original
**"CUSHION-TYPE"**
**FLOOR SEALS**
—built for traffic—
with a capital T.

They give you a choice of finishes for any flooring material which will make the polish job
LAST LONGER

OUR
**DEODORANT BLOCK**
business began to suit us when
we perfected the
**VITOZONE**
processed
deodorant blocks that
SUITED THE USER.
all sizes, all shapes, all odors.

Get in touch with the disinfectants made and priced to keep you in touch with the
**BIG DISINFECTANT VOLUME**
PURE PINE OILS
Co-efficients 3, 4, F.D.A.
COAL TAR
Co-efficients from 2 to 18 F.D.A.



DEODORANTS • DISINFECTANTS • POLISHES • SOAPS
FLOOR TREATMENTS • CLEANERS • INSECTICIDES

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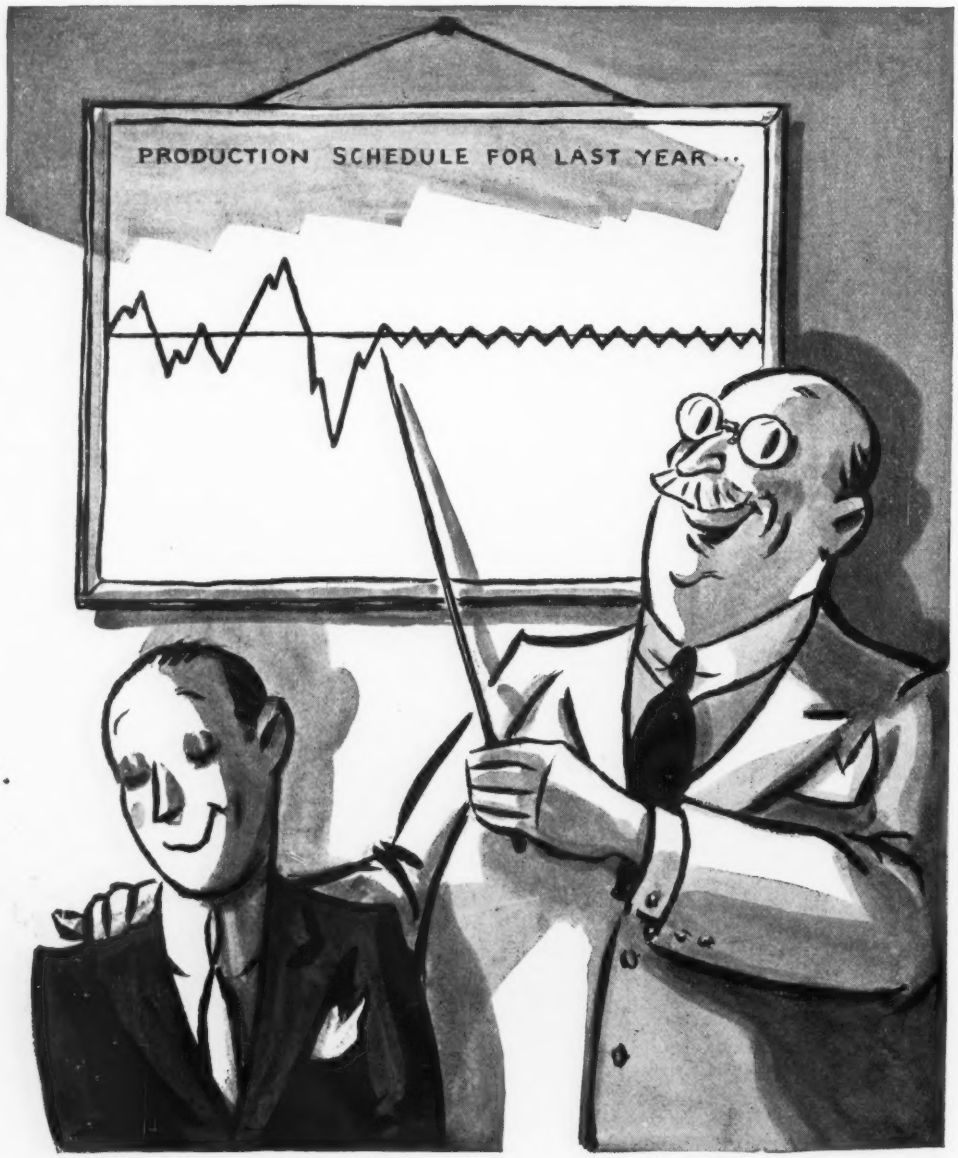
**FULD BROS.**

BALTIMORE

*Exclusively to Jobbing Trade*

FULD MAKES IT FOR THE LEADERS
IN BULK
or packaged under
PRIVATE LABEL




"It was at about this point, gentlemen, that our Mr. Smedley suggested using

**Niagara Caustic Potash"**

*P.S. May we suggest that you use Niagara Caustic Soda and Carbonate of Potash, too?*

**Niagara**
**ALKALI COMPANY**
**42nd STREET, NEW YORK, N.Y.**
*Associated with Electro Bleaching Gas Co.*
*Pioneer Manufacturer of Liquid Chlorine*

# Soap and Sanitary Chemicals

Volume XIV
Number 2

FEBRUARY
1938

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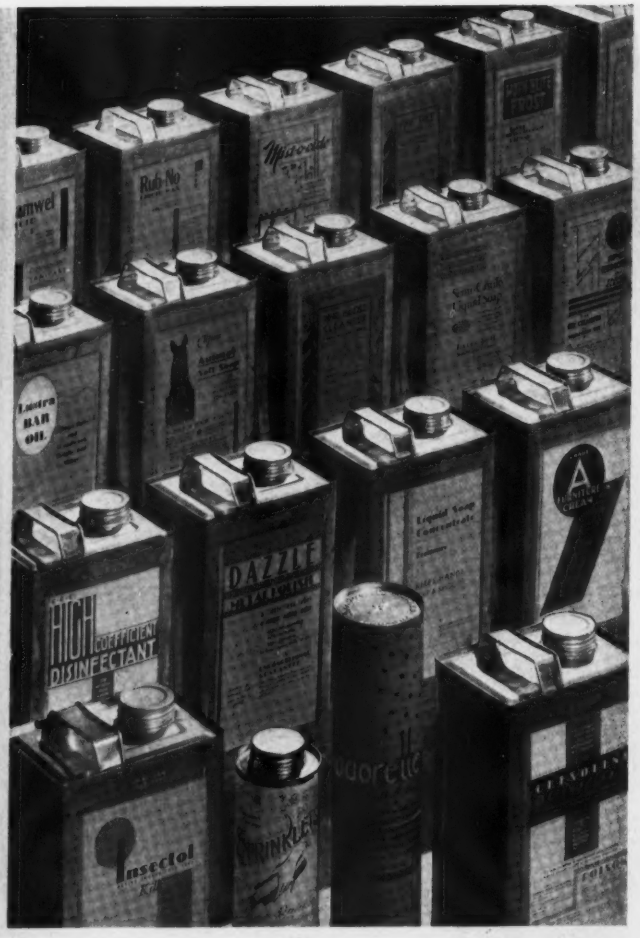



# WAITING
## *to increase your sales*

Here is a set up that is 100% in your favor. Labels (with your imprint) that delight the eye, coupled with quality, price and friendly service that is bound to aid your business.

Here is what one jobber wrote in:

"Our sales have nearly doubled since taking on the Clifton Line." Many others on the same order. Inquire NOW while the matter is fresh in your mind.

**CLIFTON CHEMICAL CO., INC.**
246 FRONT STREET NEW YORK, N. Y.

-----TEAR OFF HERE----------

CLIFTON CHEMICAL CO., 246 Front St., New York City.
We are interested. Without obligation send details on items checked.

- ☐ CONCENTRATED LIQUID SOAP
- ☐ COCONUT OIL BASE
- ☐ OLIVE OIL BASE
- ☐ DISPENSERS
- ☐ RUB-NO WAX
- ☐ DEODORIZING CAKES
- ☐ DEODORIZING BLOCKS
- ☐ WALL CONTAINERS
- ☐ METAL POLISH
- ☐ MOPPING VARNISH
- ☐ DISINFECTANTS
- ☐ FURNITURE CREAM
- ☐ INSECT KILLER
- ☐ SPOT REMOVER
- ☐ SHAMPOOS

NAME .....

ADDRESS .....

# *Gorgeous Furs— Glamorous Complexions*

# HAVE VITAMIN F IN COMMON!

Women admire the glossy lustre of expensive furs. They glory in the smooth softness of healthy complexions. Few realize, however, that gorgeous furs and glamorous complexions have vitamin F in common—that the same factor responsible for the glistening sparkle and sheen of the fur they prize is also responsible for the velvety softness and youthful appearance of the complexion they desire.

Vitamin F, the vitamin most closely associated with skin health, represents the essential unsaturated fatty acids. Its relation to soft lovely complexions, smooth clear fingernails, radiant healthy hair has been convincingly established. Soaps reinforced with vitamin F have shown themselves highly effective in preventing and correcting skin faults which result from vitamin F deficiency and in imparting new freshness and tone to the skin.

This important skin-health vitamin F is available to the trade in a concentrated form that will blend with almost any form of soap without change in formula. Moreover, it is effective in such minute quantities that the additional cost to the finished product is practically negligible.

Toilet soaps, bath soaps, shampoos are natural vehicles for replenishing the skin with vitamin F. For more information about skin-conditioning vitamin F and its use in soap, mail the coupon today.

## ARCHER-DANIELS-MIDLAND CO.

**675 ROANOKE BUILDING, MINNEAPOLIS, MINN.**

**ARCHER-DANIELS-MIDLAND COMPANY.**
**675 Roanoke Building, Minneapolis, Minnesota.**

**MAIL TODAY**

**Please send by return mail complete information about the use of vitamin F in soaps; also the article "Vitamin F Ointments" as reprinted from the Illinois Medical Journal.**

**Individual** .....

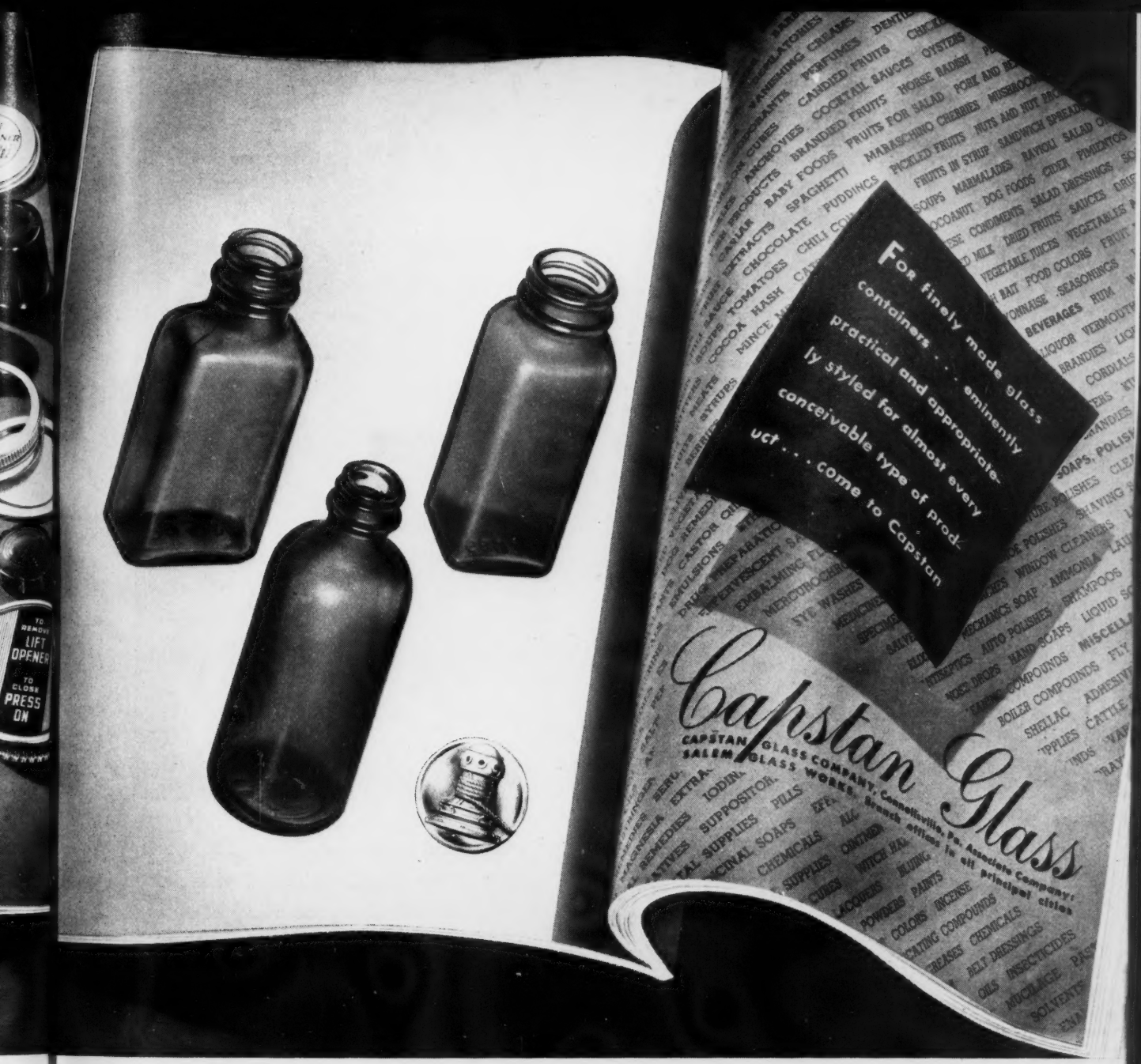
**Firm** .....

**Address** .....

**PRODUCERS OF STABILIZED AND BIOLOGICALLY ASSAYED WHEAT GERM OIL — VITAMIN E**

ANCHOR seals them all . . . an almost limitless variety of products . . . safely, efficiently, attractively. The secret lies in the painstaking development, over almost a third of a century, of the most complete line of closures in the world. Why not give your products and your packages the sales and production advantages of these *better* caps . . . utilizing the accumulated experience and unrivaled facilities of the Anchor organization! ANCHOR CAP & CLOSURE CORPORATION, Long Island City, New York, and Toronto, Canada. Branch offices in all principal cities.

# *Anchor Caps*


For finely made glass containers . . . eminently practical and appropriately styled for almost every conceivable type of product . . . come to Capstan
Capstan Glass
CAPSTAN GLASS COMPANY, Connellsville, Pa. Associate Company: SALEM GLASS WORKS. Branch offices in all principal cities

WHETHER you package one product or many, there is a style and shape of Capstan container "built to order" for each. Moreover, by using Capstan as your source of glass supply you assure yourself of clear, sparkling, sturdy containers . . . glassware of unquestioned quality . . . supplied by an organization alert to the meaning of *service*. CAPSTAN GLASS COMPANY, Connellsville, Pa. *Associate Company*: SALEM GLASS WORKS. Branch offices in all principal cities.

# Capstan Glass

# SOLVAY'S "BIG 3" SERVICE

## Saves You Money!

Solvay's three great plants comprise the largest alkali producing unit in this country. Each of these three plants is located in an important industrial center. Each makes distribution service on Solvay Caustic Soda and Solvay Soda Ash available to customers at the lowest possible cost, and in the shortest possible time.

Every Solvay facility is extended to round out its "Big 3" alkali service — to make Solvay Service the most comprehensive service of its kind. Such Solvay departments as its Technical and Engineering Service Department, Traffic and Transportation Division, Distribution and Warehouse Divisions, are ever seeking out new means to aid customers, to reduce shipping costs and to insure adequate supplies of alkalies and allied products.

**ASK FOR INFORMATION**

Potassium Carbonate
Potassium Carbonate Liquor
Modified Sodas
Liquid Chlorine • Salt
Ammonium Chloride
Calcium Chloride
Causticized Ash
Caustic Potash • Soda Ash
Sodium Nitrite
Para-dichlorobenzene
Ortho-dichlorobenzene

Solvay's "Big 3" alkali service will prove of definite benefit to your business. It is a service designed to fulfil your requirements as an alkali user. Your inquiries as to how Solvay Service can be made available to you are cordially invited.

**SOLVAY SALES CORPORATION**

*Alkalies and Chemical Products Manufactured by The Solvay Process Company*

**40 Rector Street New York**

*Branch Sales Offices:*

Boston Chicago Cleveland Indianapolis New Orleans Philadelphia St. Louis
Charlotte Cincinnati Detroit Kansas City New York Pittsburgh Syracuse

# *UNDERSTANDING*

A perfumer who understands the effect of aromatics in soap, and possesses, as well, the skill of the master perfumer, can create the best soap perfume.

For example, he knows that some costly oils will lose their beauty in a finished cake of soap, whereas, some inexpensive items will show great fineness.

It is this understanding, both of perfumery and of the manufacture of soap products, that enables van Ameringen-Haebler to lead the field in the successful manufacture of better soap odors.

**VAN AMERINGEN-HAEBLER, INC.**

**315 Fourth Avenue New York City**

# *A new and different* BLUE BOOK *for 1938!*

***. . . larger page size***

***. . . more pages . . . new features***

***. . . better advertising positions***

***. . . larger circulation***

***. . . no increase in advertising rate***

The size of the advertising page in the new 1938 BLUE BOOK, now in preparation, will be increased to 7″ x 10″, giving advertisers a substantial space dividend without any increase in rate. The overall page will be 9″ x 12″, the same as regular issues of SOAP. To facilitate binding, a flexible cover will be substituted for the stiff cloth cover.

At the same time circulation will be increased from 3,000 to 3,500 copies, further increasing the productivity of BLUE BOOK advertising. A change in name will be made to BLUE BOOK and REFERENCE MANUAL.

Advertising copy, in the new edition, will run opposite reference material and buyers' guide listings instead of being grouped in a separate section. On the page facing this page are listed the titles of articles which will appear in the reference section. Advertising space will be assigned opposite specific articles in the order in which requests are received. Check the list now to see opposite which titles you would like to be represented.

***Published by***

## MAC NAIR-DORLAND CO.

**254 WEST 31st STREET** **NEW YORK, N. Y.**

# *Contents of* 1938 BLUE BOOK

**The reference section of the 1938 BLUE BOOK will contain the following articles:**

**Soap Dispensers**—an article detailing the types of dispensers in common use.

**Packaging Equipment**—a symposium covering the various types and sizes of packaging machines in common use in the soap and sanitary chemical field.

**World Soap Consumption Analyzed.**

**A Review of Recent Patents on Disinfectants and Insecticides.**

**A Study of White Shoe Cleaners, Their Formulation and Marketing.**

**Insecticide Perfumes**—a review of the suitability of various perfuming materials for insecticide use.

**Household Ammonia** — data on manufacture, dilution, bottling, etc.

**Water Hardness Statistics** for United States.

**Official NAIDM Specifications for Insecticides and Disinfectants.**

**Peet-Grady Test for Insecticides.**

**F.D.A. Test for Disinfectants.**

**U. S. Specifications** for Soaps and Sanitary Chemicals.

**U. S. Tariff** and Excise Rates on Oils and Fats.

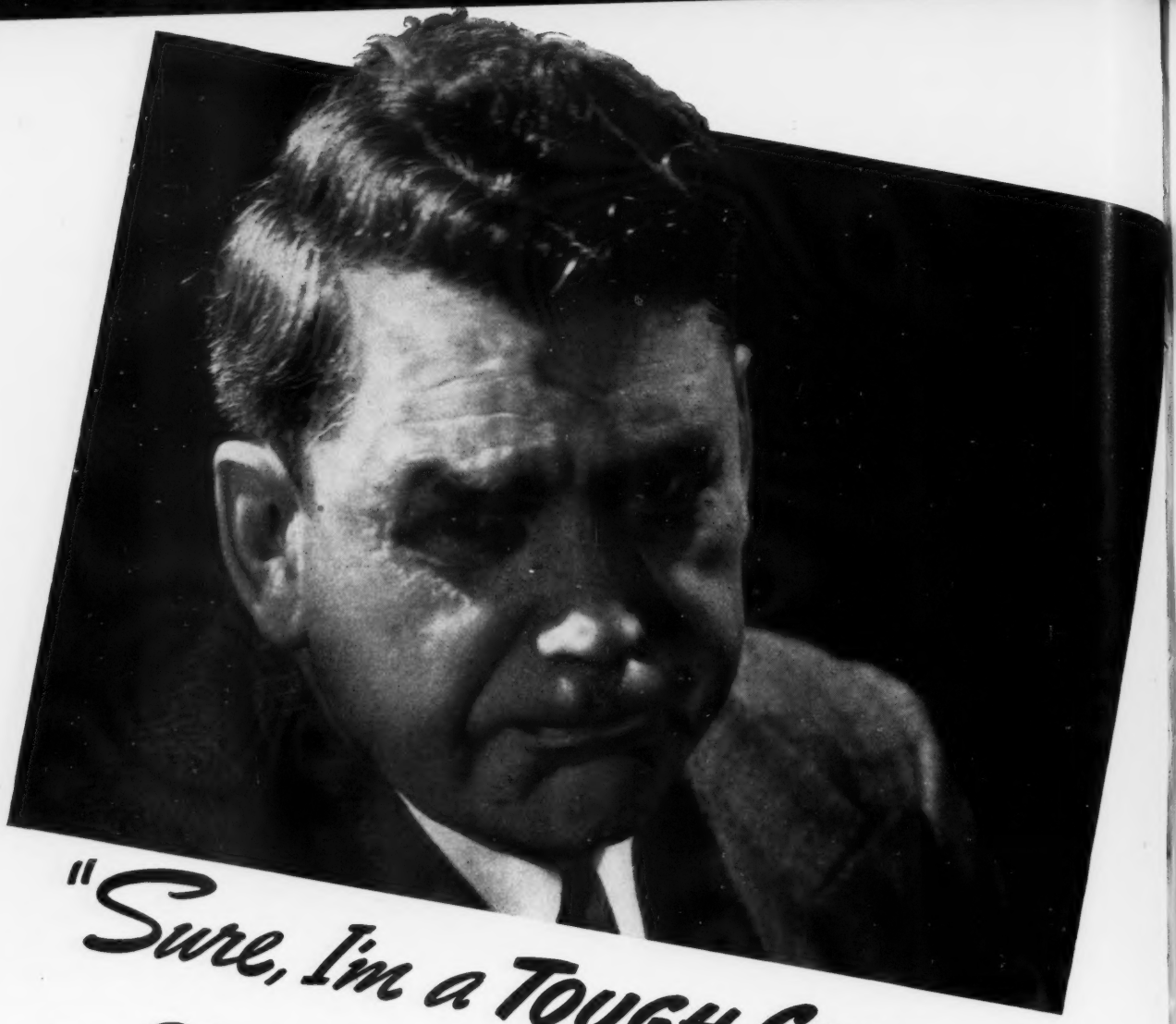
**Index** to the Monthly Issues of SOAP for the Past Four Years.

**Officers of Associations** in the Soap, Sanitary Chemical, Drug, and Allied Fields.

**And a Host of Other Valuable Reference Material.**

As in previous years, an important feature of the BLUE BOOK will be the Buyers' Guide Listings. We strive to make these complete, by listing all actual first-hand suppliers. At the same time, we adhere resolutely to a policy of accuracy and conciseness, eliminating the padding found in so many directories, and confining our listings exclusively to first hands.

**Circulation**—TOTAL PRINTING, 1938 Edition, 3,500 copies. One copy to the purchasing department of each of the subscribers of SOAP. These firms include makers of soaps of all kinds, disinfectants, cleansers, polishes, household insecticides, deodorants and related sanitary products, sanitary supply houses, exterminators, fumigators, etc. In addition, each new subscriber during 1938 will immediately receive a copy of the BLUE BOOK.

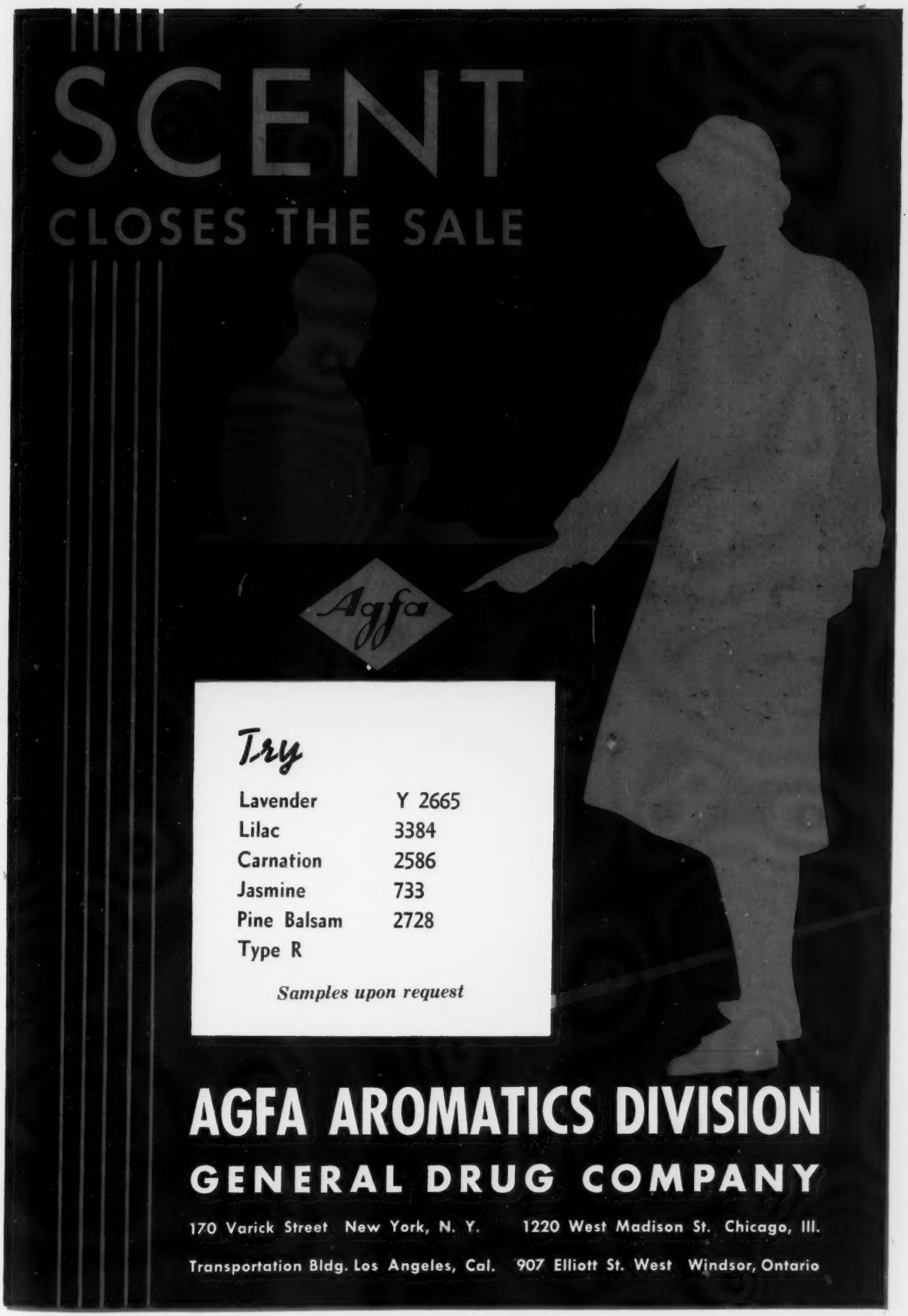


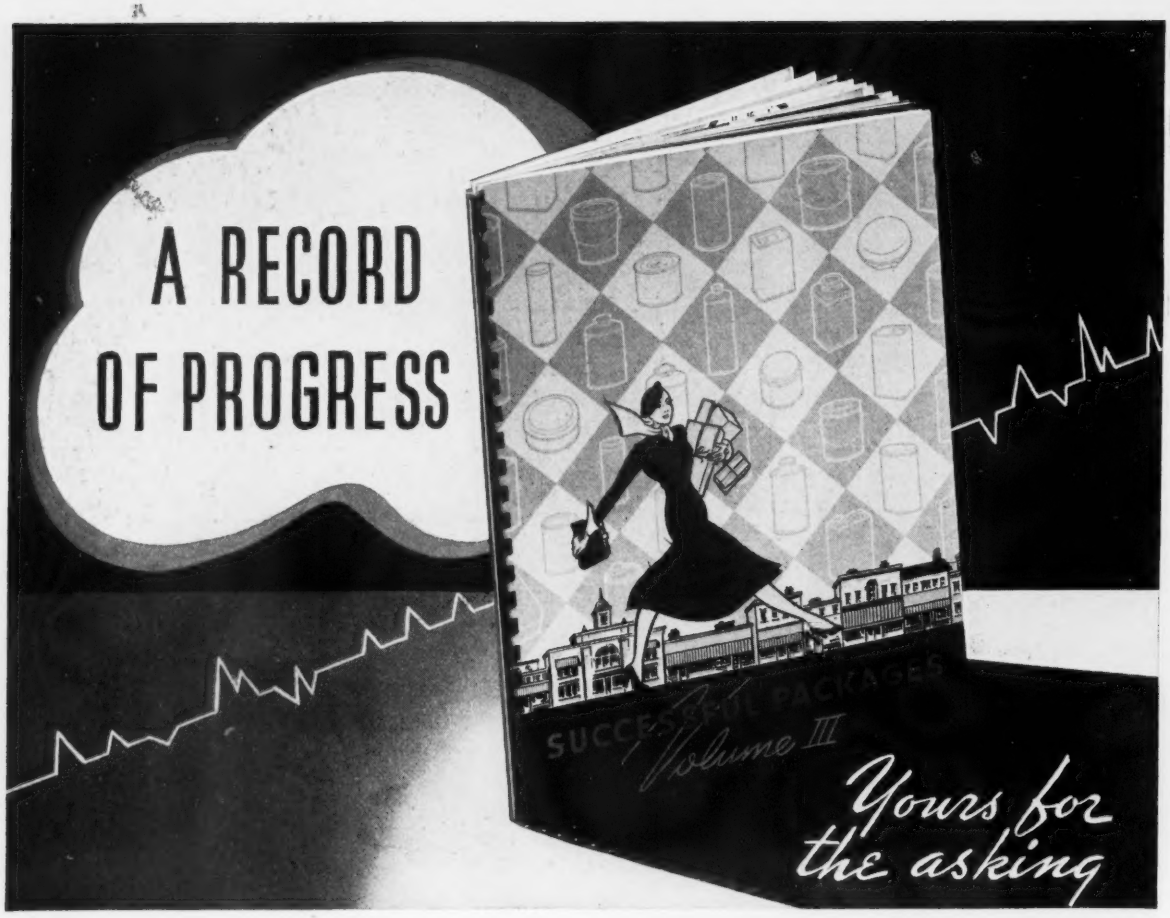
# "Sure, I'm a TOUGH GUY ... sometimes!"

"I saw an advertisement run by The Associated Business Papers that pictured me as typical of the prospects that advertisers' salesmen classify as 'tough guys.' The ad went on to say that while I am tough when salesmen call, I am pretty regular when I am reading an A.B.P. publication. Well, I don't resent it a bit. With so many keen salesmen calling on me every day, I have to pretend to be hard-boiled most of the time.

"But you can be sure that I put aside that 'protective mask' when I am reading SOAP because that is where I go to keep in touch with trends and developments in the soap and sanitary chemical industry; for practical ideas suggested by an editor who is familiar with my business. I know that SOAP is written for *me*, not for its advertisers. Yet I read the ads, too, because I know that they are in there only because they have something to offer—not because they got editorial publicity.

"I pay cold cash for my subscription to SOAP and you can bet I wouldn't do it unless I get my money's worth."


SCENT
CLOSES THE SALE
Agfa
Try
Lavender Y 2665
Lilac 3384
Carnation 2586
Jasmine 733
Pine Balsam 2728
Type R
Samples upon request
AGFA AROMATICS DIVISION
GENERAL DRUG COMPANY
170 Varick Street New York, N. Y. 1220 West Madison St. Chicago, Ill.
Transportation Bldg. Los Angeles, Cal. 907 Elliott St. West Windsor, Ontario




Each year the task of selecting the few of the many outstanding containers by Continental which can be featured in "Successful Packages" grows increasingly difficult. For, more and more, the manufacturer of packaged goods is learning that the container which is easy to fill, handle and ship, which makes his product easy to use and which, above all, has the eye-appeal that sparks point-of-sale contact into buying, is *not* a miracle, but merely the result of finding the right container-maker and enlisting his help.

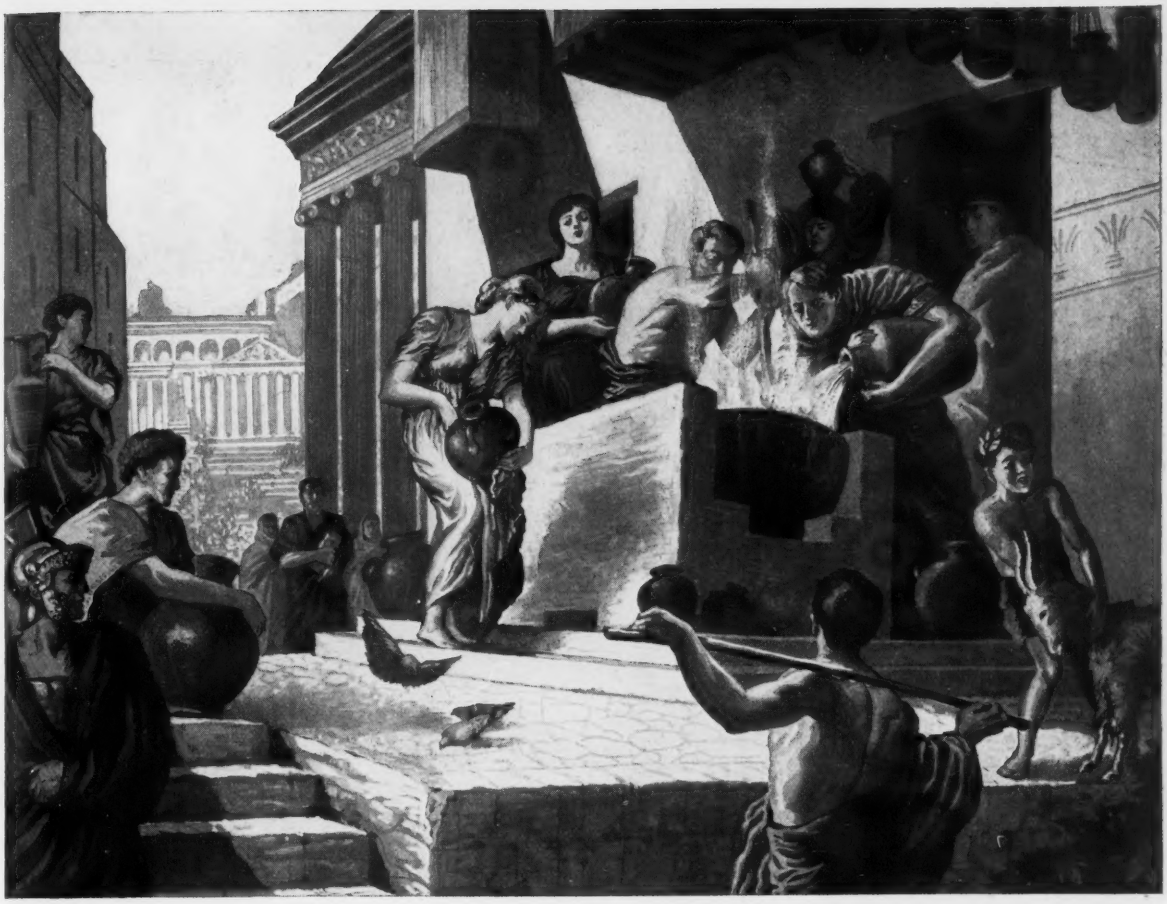
So, with regrets that all the outstanding Continental packages of 1937 could not be shown, those which have been illustrated in full color are commended to your attention. Some demonstrate Continental's ability to follow customers' orders; others represent co-operation between the customer and Continental's research, development and designing services.

A limited edition of "Successful Packages" is available to any manufacturer of packaged goods. Write for your copy today.

*Continental Can Company*

100 EAST 42ND STREET

CHICAGO NEW YORK CITY SAN FRANCISCO



## *Through The Centuries With Alkalies*

**Just as the Romans led the way in their day to new achievements in the arts and sciences, so THE COLUMBIA ALKALI CORPORATION sets new standards of product refinement and service. With the most modern production facilities, conveniently located for prompt deliveries to consuming outlets . . . with a technical staff alert to capture new refinements in product and application for the benefit of its customers . . . with conveniently located branch offices and warehouses . . . COLUMBIA stands in the forefront as a leader and as a servant of industry.**

In the days of Julius Caesar soda was mixed with goats' tallow to make soap. Pliny speaks of two kinds • hard soap and soft soap • as used by the Germans. He says it was originally a Gallic invention for giving the hair a bright hue. The Romans developed soap-making to a fine art through the skillful blending of alkalies and fatty acids, and they used soap as a medicinal as well as a cleansing agent.

# COLUMBIA

SODA ASH
CAUSTIC SODA
SODIUM BICARBONATE
MODIFIED SODAS
LIQUID CHLORINE
CALCIUM CHLORIDE

**THE COLUMBIA ALKALI CORPORATION**

BARBERTON • OHIO

NEW YORK CHICAGO BOSTON PITTSBURGH
CLEVELAND CINCINNATI ST. LOUIS MINNEAPOLIS

# Distinctly NEW EX-ALK

## LIQUID CLEANER

## FOR FLOORS AND GENERAL PURPOSE CLEANING

## Controls Alkalinity

### MAKE THESE TESTS

1. Pour about one-half inch of EX-ALK in test bottle. Add Phenol, which in the presence of alkali turns a bright red. Shake up solution. No color is seen.

2. Add an equal amount of water to above. Still no color.

3. Compare other cleaning soaps as in 1 and 2.

4. Pour EX-ALK into a soap solution that shows alkaline. The red color disappears. EX-ALK neutralizes the alkali.

Above tests prove the non-alkaline character of EX-ALK; and indicate how EX-ALK controls the alkalinity of cleaning solution.

EX-ALK is a *cleaner,* built to do a *cleaning* job on all surfaces. It is non-alkaline. Add ¼ pint (4 ounces) of EX-ALK to each 3 gallons of water to make the proper cleaning solution. *EX-ALK controls alkalinity.*

## Plus All These Features

1. Heavy suds produced by EX-ALK, clean with a gentle, thorough action.
2. EX-ALK is free from highpowered "wetting agents," with great penetration property, that drive dirt into pores and crevices.
3. Economical in use: 4 ounces of EX-ALK to 3 gallons water makes proper scrubbing solution.
4. Harmless to any surface that will stand washing with clear water.
5. Furnished in Pine or Sassafras.

**"EX-ALK"** *Product of* **THE DAVIES-YOUNG SOAP CO.**
**DAYTON, OHIO**

**A Test Kit will be furnished Free with an order for 1 drum of EX-ALK**

**Send for FREE SAMPLE and Complete Information**

THE DAVIES-YOUNG SOAP CO.
Dayton, Ohio

Please send sample, prices and other information about EX-ALK Liquid Cleaner.

Name.....

Address.....

City.....

# OIL SASSAFRAS ARTIFICIAL

# SAFROL

# OIL CAMPHOR "SASSAFRASSY"

We take particular pride in the UNIFORM HIGH QUALITY of these three products which we supply to the Soap Industry.

Made by us in our own factory FREE FROM FOREIGN BY-ODORS.

Prices in line with Quality—Spot or Contract Basis.

*Working Samples Gladly Sent on Request*

# ORBIS

## PRODUCTS CORPORATION

215 PEARL STREET, NEW YORK - FACTORY & LABORATORY, NEWARK, N. J.

CHICAGO
844 Rush St.

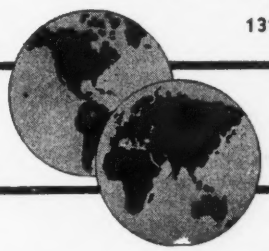
PHILADELPHIA
253 Bourse Bldg.

BOSTON
131 State Street

LOS ANGELES
742 So. Hill St.

Water Soluble Gums
Filter Paper
Aromatics
Rice Starch

Waxes
Stearic Acid
Essential Oils
Zinc Oxide French



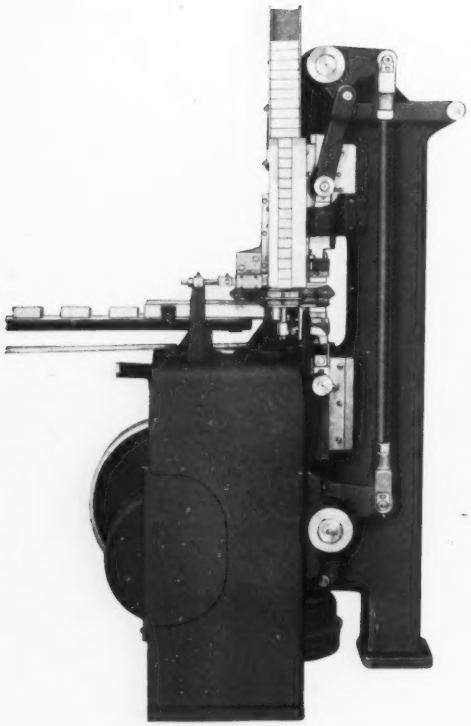
Cosmetic Raw Material
Oleo Resins
Perfume Bases
Olive Oil

Fruit Flavors
Food Colors
Quince Seed
Irish Moss

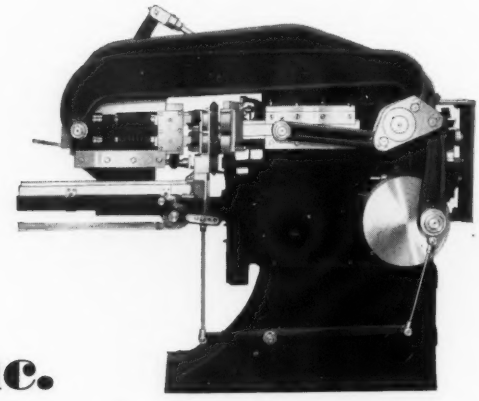
# . . . . modernize and economize with

# JONES SOAP PRESSES

AVOID the costly continued operation of obsolete soap presses . . . they are expensive to run . . . they take their toll in badly pressed soap, and marred cakes . . . replace your old presses with the new type JONES Toggle Operated PRESSES . . . obtain fine looking, well-pressed cakes of soap . . . at lower pressing costs . . . and increased output . . . without noise or vibration . . . better soap plus economy by modernizing with JONES Toggle Operated PRESSES.



Type ET Toilet Soap Press



Type K Laundry Soap Press

**R. A. JONES & CO., Inc.**

P. O. Box 485 Cincinnati, Ohio

The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

# As the Editor sees it..

DISCUSSING recently the status of current soap sales with an executive who has perhaps as clear a general picture of the industry's business as anybody, we asked him to estimate in round figures what he thought the present rate of sales and shipments might be as compared with the average normal. He gave ninety per cent as his estimate, stating that it might be a point or two below this, but that he did not believe it was any lower. Looking over other large industries whose production and sales figures are admittedly well below this level, it does not appear that soap manufacturers on the whole have any great cause for complaint,—at least as far as volume is concerned. When it comes to excise taxes, luxury taxes, and a hundred-and-one other taxes and problems,—that is a horse of another color. But at least people are still using a fair amount of soap. There is some consolation in that.

FROM a bulletin of a well-known manufacturer of silicates, we quote the following regarding detergents and the ideal detergent agent: "Nobody has, up to the present writing, produced a perfect detergent. It might even be safe to say that no one has described the properties of a perfect detergent. Perhaps there is no possible solution of this problem because detergent requirements are so different, but it would be a great help if some standard means of describing what is required, could be evolved."

This is part of a piece dictated by a scientific mind, even though he does divorce suds from cleansing action by pointing to the absence of any detergent action of beer suds wiped from a gentleman's whiskers. And insofar as a scientific mind was at the throttle in this instance, we must naturally expect the utmost in conservatism. The perfect detergent? There must be at least two hundred of them on the market if we are to take advertising copy at its face value. But perhaps that is because the advertising folks are right up to the minute and the technical men cannot see the perfection of their own work. Science is so backward sometimes.

BUSINESS continues jittery. Along toward the end of January, however, things showed an inclination toward improvement, and purchasing and other activities picked up. Nevertheless, business goes about its daily routine with one eye focused on Washington, wondering when the next broadside will be delivered and at whom it will be aimed. The feeling of confusion and uncertainty is not confined to big business. Small firms are worried and puzzled, to some extent by retarded business, but mostly over laws and regulations, taxes, and a host of other governmental activities, many of which are construed as serious threats to the future.

Business men do not know what to expect next, and as long as they are confused, the chances of their expanding activities to aid in a general pick-up are slim,—very slim. Nobody with any sense is going to buy raw material and put men to work if he is not quite certain of selling his finished goods at a profit.

The administration in Washington can thank itself mainly for the present slump and the confusion of business,—aided and abetted to a degree by the asinine activities of various and sundry state legislatures and bureaus. Conferences may

be held in Washington until doomsday, but they will not start the ball rolling again. The genuine solution of the problem is exactly the reverse,—leave business severely alone for a time, cease harassing, cease threatening,—and business will see to it that the down-trend in employment and wages is turned upward, which in the last analysis is what Washington and the business world as well both want.

RECIPROCAL trade treaties seem to be the fashion of the day. At present, the American State Department is engaged in working out a trade agreement with the United Kingdom. The benefits of this and other reciprocal arrangements have been heralded as of untold benefit to every last mother's son of us. Seldom do we hear much about the other side of the picture, except perhaps an occasional protest like a voice in the wilderness. We had about concluded that our suspicions of these trade treaties,—that they are little more than an insidious undermining of the tariff structure behind which the chemical process industries of the U. S. particularly have grown strong and self-sufficient,—was all unfounded, when along came the prediction to us that the effects of these trade arrangements were liable to be more far-reaching than might be expected.

It was pointed out that once these treaties are arranged, they cannot be changed for three years,—and what is more important, any arrangement for the free importation of any product under a treaty also applies to all countries in the "most-favored nation" classification. With Germany about the only country of consequence not on this list, the potentialities, if we are correctly informed, are rather extensive. In some cases, the possibility of lower raw material cost might off-hand seem attractive to some industries, but on the other side, there looms the prospect of free and open competition with cheap foreign production of finished goods. Possibly we are wrong, but it appears that the free-trade group are in a fair way to accomplish by working behind the scenes that which they have been striving without success for years to accomplish by working through the usual law-making channels.

MANDATORY registration of trade marks by states continues as a serious nuisance,—not only approaching the class of a racket in itself, but opening the door in several ways for business sharpshooters. Piled on top of the multiplicity of state regulations and restrictions on commerce in general, state trade mark registration requirements are adding their share to build up the ever-growing mountain of obstacles in the path of interstate commerce. State trade mark registration is wholly unnecessary. It can be nothing else but another political subterfuge to rake in the taxes so that more jobs may be established for the faithful. The most serious feature of this evil is that it invites trade mark thievery and business blackmail. It permits the quick and shifty crook in some instances to take a toll from honest manufacturers by prior registration.

That any such practice is possible in this day and age seems inconceivable,—but it is. Additional bills of this type will be introduced during coming sessions of state legislatures. That they are a sad commentary on the calibre of the legislative bodies which govern many of our states, and are almost nauseating to consider, will not aid the injured manufacturer. Only sharp and prompt protest, preferably from reputable manufacturers within a state, will help to forestall further legislation of this type.

FOLLOWING the turn of the year the oil and fat market is reported to have reversed its recent downward trend. Soap fat buyers, who were inactive over the latter half of 1937, have resumed buying on a fairly substantial scale, giving impetus to the advance. All of this gives credence to the theory that the recent price drops in so many lines were the result of overstocking. With stocks cleared away, buying again resumes in normal volume.

Lord Leverhulme sees no cessation in the uptrend in world soap consumption. His most recent visit to the United States was chiefly in the interests of the Seventh International Management Congress to be held in Washington next September.

*Times Wide World*

# ...what future for soap?

## A world authority hazards an opinion on soap consumption, the new synthetic detergents, and other matters

*An Interview with*

**Viscount Leverhulme**

*Governor, Lever Brothers and Unilever, Ltd.*

FOR many years to come, the trend in the world's consumption of soap, will be upward. In spite of advancement in other detergents, and in spite of a bad year or two now and then, the use of soap will increase in waves following the general state of world trade, each succeeding wave in the upswing going higher than the average of those preceding. Today, many of the peoples of the world represent almost an untapped market for soap, particularly in China, India, Africa, and elsewhere, so small is their present consumption compared to what it is likely to be some years hence. The trend is toward greater cleanliness in every part of the world, and the potentialities of people becoming cleaner translate themselves into a steadily increasing use of soap in the future.

These are a few of the views expressed by Lord Leverhulme, who is governor of the vast Lever interests, when interviewed in New York on January 27th by a representative of SOAP during a brief visit to the United States. Lord Leverhulme came to New York primarily to aid in the preliminary arrangements for the Seventh International Management Congress to be held in Washington, D. C., next September, at which meeting he will preside as president of the International Committee for Scientific Management.

Lord Leverhulme is the second Viscount Leverhulme, son of W. H. Lever, the first Viscount Leverhulme, who with his brother J. D. Lever, founded the famous English soap business at Warrington in 1885. The present Viscount is a quiet, unassuming Englishman, a keen student of business and politics. For all the worldwide interests of the Lever organization, he might be another American business man, with a ready smile and a warm and friendly manner. He is particularly interested in

*Underwood & Underwood*

The late W. H. Lever, first Viscount Leverhulme, co-founder of Lever Brothers,—the man who introduced a new attitude toward labor in industry almost a half century ago,—the first to provide improved housing facilities for his workers on a large scale,—and father of the present Lord Leverhulme.

the problems of industrial management. Present during the interview with Lord Leverhulme was F. A. Countway, president of Lever Brothers Co., Cambridge, Mass., the American Lever company. Mr. Countway is also president of the Association of American Soap & Glycerine Producers.

Talking of many things of interest to soap manufacturers, Lord Leverhulme stated that the soap industries of the United Kingdom and on the Continent were in a generally strong and healthy condition. In one or two cases, particularly in Germany, the political situation tends to make progress in the soap industry more difficult. Scientific progress in soaps and detergents is making rapid strides abroad, just as it is in the United States, while the problems of markets and marketing there are essentially the same as here.

Asked what he thought of the future of the newer non-soap detergents, Lord Leverhulme said it was difficult to say owing to the rapidity of development of the result of chemical research. He stated that he believed these new products would find their place in the world of detergents and in the long run would not greatly disturb the position which soap holds in the market today. The future demand will undoubtedly be well able to take care of the output of these new products in addition to those already on the market. He pointed out that over the past forty or fifty years, numerous new forms of soap have come on the market, chips, flakes, granules, powders, and others, and in the main, they have taken their place as added consumption without materially affecting the older forms of soap which were on the market previously. He inclined to the view that new things usually mean an expanded market for the products of any industry. Asked if the Lever interests intended to enter the field of synthetic detergents, he stated that they were already quite definitely in the field.

It was pointed out to Lord Leverhulme that a well-known authority had recently stated that he foresaw a steadily dwindling soap consumption in the future as the result of more efficient soaps, inroads of new synthetic detergents, less wastage of soap as a result of rapid expansion in water softening operations, and the more efficient use of all detergents. He stated that he disagreed with this authority, and pointed again to his reasons for stating that the potentialities for expansion in soap consumption were very great.

Discussing the world oil and fat supply, Lord Leverhulme stated that he thought it would always be adequate to meet the demands for foodstuffs and industrial uses. He said that with steadily widening cultivation in the field of vegetable oils, both in annual seed crops and in plantation development of such products as palm and coconut oils, there would be better control of production in the future. Less dependence on nature and more on the scientific development of vegetable oil sources means greater assurance of an ample fat supply. In the case of whale oil, a more scientific and cooperative attitude in operations was in the interest of the future of the industry.

Following a discussion of the long-term future trends of the soap industry of the world, questions were asked Lord Leverhulme regarding the labor situation in the British soap industry, and from this he went on to tell some of the beginnings of the work of his famous father in the founding of the residential village of Port Sunlight in England. The English soap industry has been free from labor difficulties for many years. No

question of recognition or lack of recognition of the unions exists in the soap industry there. The recognition by employers dates far back. Also recognized by unions and employers alike is the joint Industrial Council, before which labor disputes are placed for settlement. Quite evidently, the operations of this Council are altogether successful because there has not been a strike or labor disturbance in the English soap industry in almost twenty years. Not all the employes of the soap industry there are members of the union, but most of them are.

It so happens that March 3, 1938, marks the fiftieth anniversary of the founding of the first Lever plant at Port Sunlight, near Liverpool. The sod was broken on March 3, 1888, by the wife of W. H. Lever and the building of the now famous soap factory was begun. The company which had been founded in Warrington only three years before, had grown rapidly and was forced to seek more room by the expanding business. It was not until 1894, however, that the firm became a limited company, that is, was incorporated, being up until that time a partnership of W. H. Lever and J. D. Lever.

In 1892, one of the most significant developments in the entire history of the Lever Interests occurred, a development which was tied in closely with the labor policy of the company back in the days when the rights of labor were none too well defined. The first houses for workers in the Lever plant were built at Port Sunlight. This was an innovation which attracted wide attention, instituted by the first Viscount Leverhulme. It was the original industrial housing development. Simultaneously with the beginning of the Lever plan, a similar work was undertaken by George Cadbury, the English chocolate manufacturer, and it is these two men who will go down in history as being the first to provide improved, attractive, and well-equipped housing facilities for their workers.

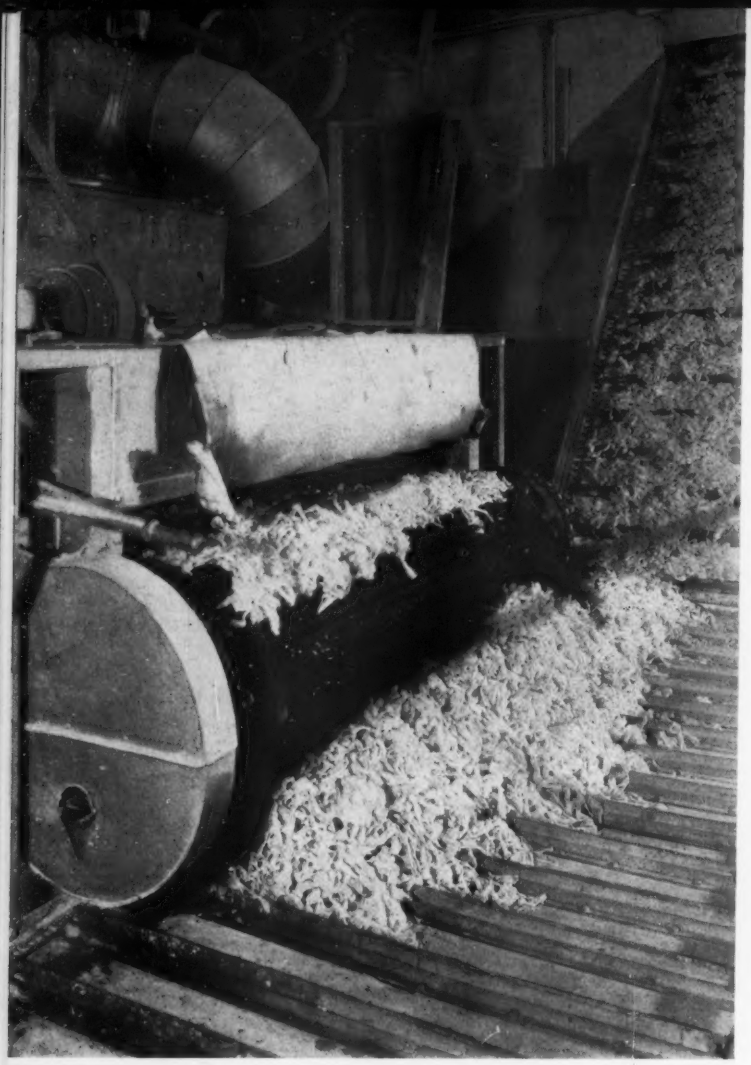
Today, there are over a thousand houses in the Port Sunlight residential development, and the population of this industrial village is over five thousand. Rents are reported as ridiculously cheap, at least according to American figures.

From the small beginnings of the Lever brothers at Warrington, the interests of the firm have spread to all parts of the world,—soap plants, palm plantations, other oil and fat production, margarin manufacture, whaling, and many others. From the original few employes, the workers of the Lever companies have expanded to a total of approximately 100,000 located on every continent, and including the two large soap plants in the United States at Cambridge, Mass., and Hammond, Indiana, and the plants for the production of edible fatty products at Edgewater, N. J., and Hammond, Ind. By those who know the details, the growth of the Lever business has been hailed as a monument to scientific management.

*Pirie MacDonald*

Francis A. Countway, directing head of the American Lever interests,—president of Lever Brothers Co., Cambridge, Mass. Mr. Countway is also president of the Association of American Soap & Glycerine Producers.

**SPEAKING before several hundred editors and publishers of business papers in New York at the Town Hall Club last week at a luncheon sponsored by the Associated Business Papers, Lord Leverhulme, British soap manufacturer and head of the world-wide Lever interests, paid a marked tribute to the president and management of the American Lever companies. Present in the United States in the interests of the Seventh International Management Congress to be held in Washington next September, he was discussing the subject of scientific management in industry. Pointing to some of the most important factors in successful management, he mentioned devotion and loyalty of the management as one of the most essential,—and then stated there was perhaps no better example of this than that shown by those who direct the welfare of the Lever interests in the United States.**



# Cracking of

## A critical examination of old and new theories and practice.

**By Joseph M. Vallance**

*Warrington, England*

THE prevention of cracking and splitting still remains one of the major problems confronting the soapmaker. This is not surprising when one takes into consideration the conflicting character of the various theories put forward in explanation of cracking. Some of these theories, indeed, have received widespread publicity and considerable lip service, although in actual practice they are either quite useless or, at the best, nothing but confusing half-truths. Just recently the subject has been brought prominently to the fore by the original work carried out by Sadgopal of Benares Hindu University. I have since had the opportunity of discussing the theories of Sadgopal, E. T. Webb and others, with several friends in the soap business, so that the following paragraphs consist essentially of a general review of the subject, coupled with suggestions that appear to me to provide the most satisfactory solution of cracking and splitting problems.

Correct moisture distribution in the chips as they emerge from the dryer is an important factor in producing a cake of soap which will not crack.

In the first place, it may be as well to tabulate quite briefly the various factors that have at one time or another been held to give rise to cracking in toilet soaps. They are as follows:

1. Excessive salt content of the soap base.
2. High titer fat mixture. Later elaborated to mean a soap with too high an I.N.S. number.
3. Faulty boiling, including presence of niger.
4. Excessively dry or moist soap chips, and consequent uneven distribution of moisture and presence of "dry spots".
5. Weak, inadequate compression of the plodded soap bar.
6. Incorrect stamping, i.e. against the grain of the plodded bar.
7. Variation of temperature during the mixing, milling, plodding and stamping processes.
8. Addition of unsuitable medicaments and other ingredients of an acid nature to the finished soap.

There seems no doubt that, under certain conditions, any of the above factors may give rise to cracking, but the object of an investigation such as this is rather to ascertain as far as possible the cause or causes of cracking in 90 per cent of the cases in which it occurs, i.e. in which the soap chips would appear to be perfectly suitable for the mill-

# Toilet Soaps

Storage of chips in humid air will not overcome improper drying. It will not soften the hardened edges of chips resulting from uneven removal of moisture in the dryer.

ing and plodding process, — and cracking, though present, is definitely not due to salt or niger content, etc.

As to excessive salt content, most of the literature tells us that the commonest cause of cracking in soap is due to a high content of sodium chloride. Thus Dr. J. Davidsohn, for example, states that an unduly high content of salt readily causes cracking, "and this defect occurs particularly when a large proportion of hard fat has been used in the soap mass." He goes on to stress the importance of correct salting-out and remarks that this calls for a smaller proportion of salt in the case of hard fats than in the case of soft or liquid fats and oils. Of course, all this is well known to the soap boiler, but the really important fact that emerges is, in my opinion, that the "excessive salt content" theory does not stand on its own feet, but must always be subservient to the degree of hardness of the fat mixture. Here I find myself in strong agreement with E. T. Webb and others who have stressed the nature of the fat charge as being far more important than the salt content of the soap.

Davidsohn recommends a maximum salt content of 0.2 to 0.3 in the fresh soap base, which is equivalent to a percentage of not more than 0.4 per cent in the finished milled soap, although he admits that some milled soaps show no sign of cracking with as much as 0.6 per cent salt content. Thomssen and Kemp ("Modern Soap Making") state that "investigation has shown that if the total salt content of soap does not exceed 0.54 per cent the soap will be smooth and pliable,"—a statement that naturally assumes a correctly balanced fat charge.

Most toilet soaps, however, are nowadays commonly free from any notable excess of salt,—at least, those soaps which are of any established repute,—yet the indisputable fact remains that cracking is pretty well as prevalent as it ever was. From this, one may conclude that, although the salt content should be kept as low as is reasonably possible, the soapmaker must usually look elsewhere for the primary cause of cracking and splitting.

Omitting for the moment factors (2) and (7), which seem to me to deserve the most serious attention, the other possible factors may briefly be examined in turn. Thus faulty boiling and the presence of niger in the finished soap have both been credited with the production of cracking, although of course such troubles as this should never be allowed to occur in a reasonably well run soapworks. The faulty boiling consists of allowing the kettle contents to boil during saponification without proper excess of alkali,—in which case the

whole contents may suddenly and without warning "split", setting in a glutinous mass that has subsequently to be released and reduced to a liquid and workable form by flushing the kettle with plenty of caustic. Soap that has "split" in this fashion is almost invariably "short" and crumbly, is lacking in plasticity, and is particularly prone to cracking if compressed into tablet form.

The presence of niger in the soap has also been held to give rise to cracking. An anonymous writer (1928) put the case for this in the following terms: "It is a difficult matter to judge accurately when the neat soap has finished and when the niger has started. Also, people have a habit of trying to do several jobs at once, and, consequently, if the soap boiler's mind is not wholly on the job in question, a considerable quantity of niger may get mixed with the neat soap. Once that happens it is almost impossible for anyone to detect it. Not until the tablets are manufactured does it become evident that there is something wrong with the soap. It will simply not hold together. The only way one can determine whether niger is in the soap or not is by the yield from the pan. If 10 tons of neat soap are expected, and 13 tons come out, it is fairly safe to assume that someone has blundered and that the excess is due to niger."

Cracking due to excessive moisture in the soap is very noticeable in the case of ordinary household soaps, in which the cracks are plainly arranged in laminal or platelike layers. It is quite obvious that soap chips with an uneven content of water, or with too much or too little water present in them, are likely to give rise to a soap tablet lacking in homogeneity and very prone to the occurrence of cracking. Thus E. T. Webb has remarked that many firms prefer to store the chips in bins for at least 36 hours before milling, but their object in so doing is to reduce dry spots and to eliminate cracking. The storage bins are supplied with saturated air at a controlled temperature of 18-20° C.

It has been my experience (and Webb confirms it) that humid storage does not reduce dry spots. These are produced by unequal drying caused by varying thicknesses of ribbons leaving the dryer rollers. The very thin parts, or the ragged edges of the ribbons, become superdried and break off, when the chips are handled, into small particles or even powder. The same authority further points out that these superdried particles do not absorb moisture from humid air or from moister adjacent soap, however close the contact. Mills, more often than not, are incapable of eliminating dry spots, and if such trouble is encountered, attention should be directed to the quality of the ribbons leaving the dryer.

Incorrect drying as a source of cracking has also been stressed by the English soap chemist, H. P. Martin. He points out that the modern procedure of drying by chilling the soap on rollers, and then passing it through a heated chamber on bands, appears to have a smaller margin of safety than the older method of cooling it in frames and then chipping and drying. It is particularly interesting to quote his two reasons for this: "The first is that, in the former method, the soap forms very small crystals and, unless special precautions are taken, the chips have a very tough, overdried skin, while their centers are still quite damp. The second reason is somewhat anomalous, and is that the older types of dryers are usually somewhat inefficient, with the result that the soap dries more slowly in a moist atmosphere."

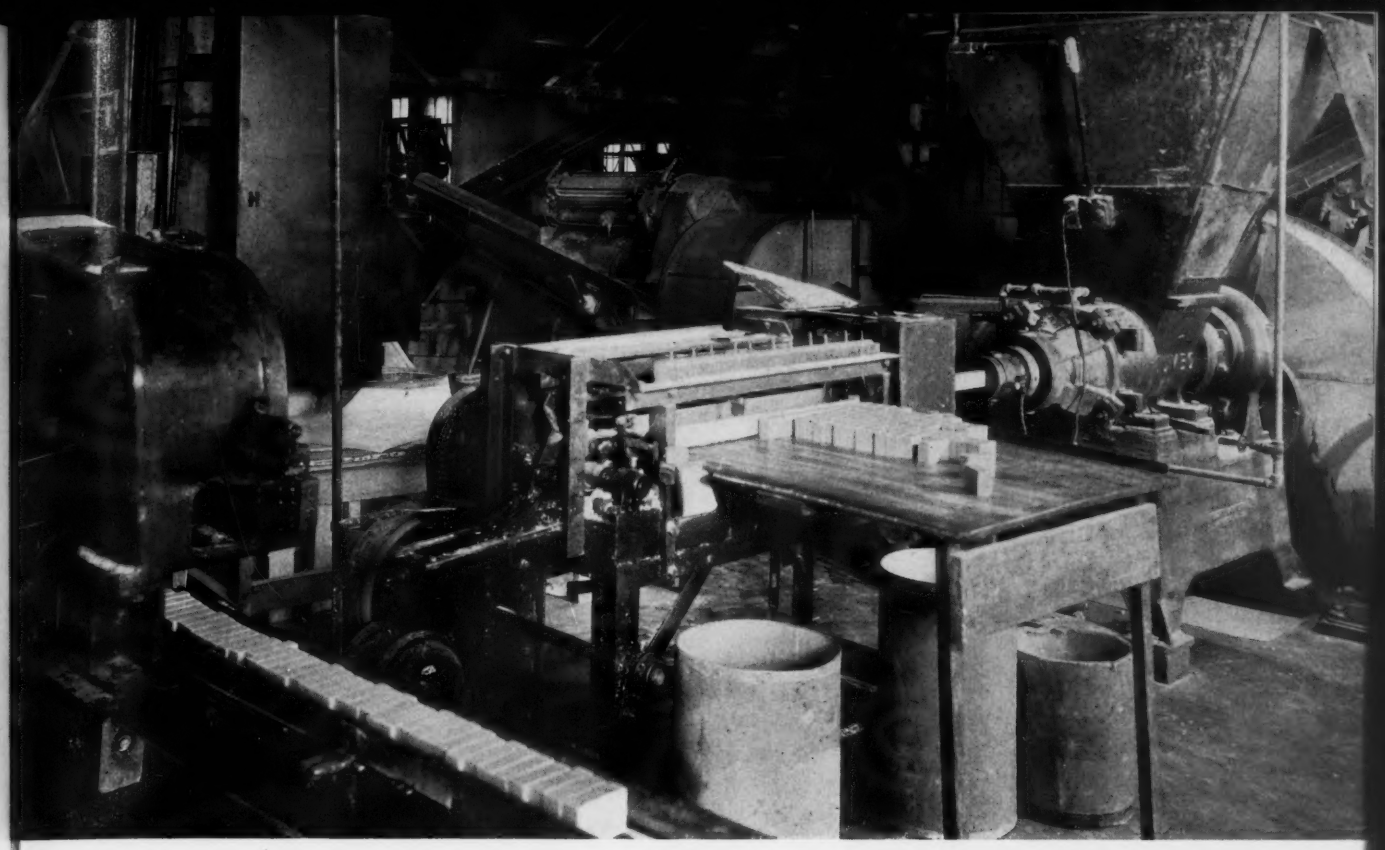
Here it may be noted that the point about soap crystallization is also bound up with the constitution of the fat charge, and is of primary importance, as will be seen later. As to the merits of the different drying systems, it may briefly be said that each presents its own advantages and, by careful manipulation, it is quite possible to avoid incorrect or unequal drying, and thus to produce soap chips that are uniformly dried to about 13-15 per cent moisture content and are thus ideally suited to the subsequent milling and plodding processes.

Marked variations in temperature during milling, plodding, and pressing tend to induce cracking. Weak, inadequate pressing, and pressing against the grain of the bar may mean cracked soap.

AT this juncture, there is scarcely much point in stressing the necessity of correct plodding, i.e. plodding under sufficient pressure and at the right temperature,—but this important factor, though well known to toilet soap makers, is not always watched carefully enough in practice. If the plodder is run at too high a speed, the outside of the plodded bar may emerge more slowly than the inner core, so that it is imperative to have the machine adjusted to run at the correct speed. At least one cause of cracking is brought about by allowing the milled chips to "bridge" or obstruct themselves in the hopper of the plodder, thus causing loss of compression and a bar of soap that is characterized by unbalanced internal stresses.

It is also quite easy to allow the plodder to stand idle for a time and forget to turn off the water in the cooling jacket. This will result in too low a temperature, with the risk of subsequently obtaining soap with a soft warm skin (warmed at the heated nozzle) and a cold, hard core. Tablets of perfectly good appearance may be stamped from such a billet of soap, but the inevitable result is a fracture of the core which does not become apparent until the soap is in use. If, on the other hand, the soap is warm throughout, it will be sufficiently plastic to be made into tablet shape quite readily under the greatly reduced pressure of the stamping machine.

Stamping, too, will give rise to this same class of what may be termed "mechanical" cracks, i.e. those in which the otherwise suit-



able soap mass is subjected to incorrect strains and stresses by incorrect machining. It should be more readily obvious than it appears to be,—judging by the shape of some of the tablets on the market.—that convex ovals and oblongs are more likely to be free from eventual cracking than long flat tablets or other shapes that must inevitably call for excessive displacement of soap in the stamping machine. After all, the pressure used in stamping, is comparatively low; and considerations of efficiency should always imply a tablet that, as closely as possible, resembles in cross-section the cross-section of the plodded bar. The fact should of course be borne in mind that soaps vary considerably in pliability and plasticity, and a tablet shape that may be quite satisfactory for a palm and olive soap, may be quite unsuitable for one made from tallow and coconut oil.

Cracking, flaking and crumbling due to added medicaments (such as phenol and boric acid), preservatives such as sodium hyposulfite, or to unsuitable perfumes and dyestuffs, should be adequately guarded against by carrying out small-scale tests prior to regular factory production. Blemishes caused by acid ingredients are readily apparently, due to their immediate "shortening" action on the soap. Phenol and its homologues are commonly incorporated in a soap based on a high titer fat mixture, due to the softening action that they exert on the soap. In order to avoid cracking, however, plasticity must on no account be sacrificed, but may be aided by the incorporation of rosin in the kettle charge or compensated for by the addition of super-fatting agents in the mixer or mill.

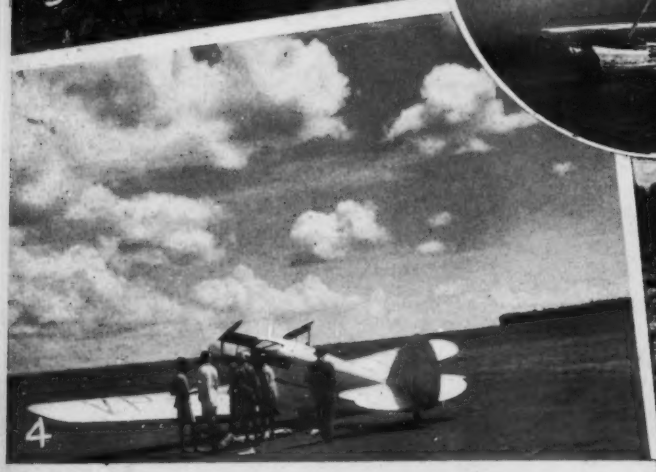
The employment of super-fatting agents such as lanolin, pure oleic acid, petrolatum, beeswax, spermaceti, glycerine, etc. is in any case useful wherever the texture of the soap is on the short side,—these materials being used either separately or in various combinations in a total proportion ranging roughly from 1 to 5 per cent. While on the subject of added ingredients, the fact should be observed that milled soaps heavily loaded with talc or china clay are particularly apt to crumble and disintegrate once the working maximum has been passed.

THE two factors that probably are more responsible for the widespread cracking of soaps than any other single cause, are, (a) uneven temperatures during the final processes, and (b) an incorrect fat charge. Fortunately, working with modern straight-line equipment, there is much less scope than formerly for sudden rises or falls of temperature during the mixing, milling, plodding and stamping processes. Where the chips are delivered direct from the mill to the plodder, there is little opportunity for temperature changes to work havoc with the texture of the soap, but where travelling belts are used the danger is considerably increased unless due care is taken to eliminate it.

E. T. Webb has cited the case of an internationally popular soap, thoroughly standardized and rigidly controlled throughout the full course of manufacture, which nevertheless cracked very badly in one of the factories in which it was made. He remarks that all manner of solutions were offered, — chlorides, soap not correctly boiled, presence of nigers, unequal drying, indifferent milling

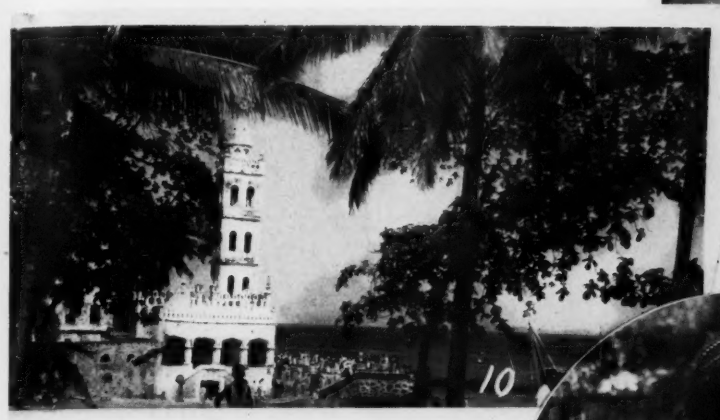
(*Turn to Page* 69)

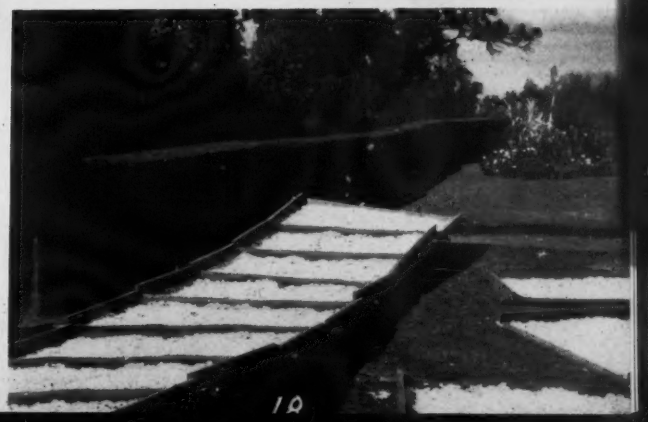
# Africa as a PERFUME



1.—Fly sprays would be welcomed by these Massai children. 2.—Distillation of Mahwa Oil in Kenya, East Africa. 3.—A Lemongrass distillery in Madagascar. 4.—About to take off with the air mail from Kenya for Nairobi. 5.—Over Kenya in East Africa. A forest fire in the distance. 6.—Foulah village hut, French Guinea. 7.—Approaching Khartum by air at the juncture of the Blue Nile and the White Nile. 8.—A typical geranium still, and the rugged country of Reunion Island. 9.—An Arabian Dhow, Madagascar. 10.—At the Port of Moroni in Comora Island. 11.—A native ferry across a river in Madagascar.

# Source of OILS






12.—Modern distillation of Mahwa Oil in Kenya. 13.—Massai natives, Kenya, East Africa. 14.—"Main street" in native village, Madagascar. 15.—Native woman and child in the Ylang-Ylang section of Nossi-Be. 16.—Ylang-Ylang tree in Nossi-Be. 17.—The water front at Nossi-Be. 18.—Not a perfume material, but drying pyrethrum flowers in Kenya.—Photographs all taken by Dr. Ernest Guenther of Fritzsche Brothers, Inc., New York, who recently returned from a trip of several months spent in the essential oil producing regions in and near Africa.

# SYNTHETIC DETERGENTS

## A condensed bibliography of the literature on new synthetic wetting, detergent and emulsifying agents with particular reference to the alcohols and related compounds

By Charles E. Mullin, D. Sc.

A GREAT many articles have appeared in the literature upon the wetting, detergent and emulsifying agents of the higher fatty alcohol and more or less closely related types. Many of these have carried short bibliographies upon the subject but, on account of the present technical and industrial importance of this particular class of wetting, detergent and emulsifying agents, it is believed that many readers of *Soap* will find a longer and more complete list, covering the field *up to 1937*, of considerable interest and help at this time, particularly from the research and legal standpoints.

This list contains approximately six hundred references to the journal literature, but is far from complete even as regards the alcohol type of products, to which it particularly pertains. It contains numerous references of a a more or less general nature, some of which serve to show the state of the art before the advent of the alcohol products. Many listings refer to the testing of these and other products used for the same or similar purposes. Other entries contain suggestions of probable uses for these and similar products, cover the requirements of wetting, detergent or emulsifying agents for certain specific purposes, etc. Many of the references during the later years particularly concern the properties of competing products, all of which is of interest in evaluating the alcohol or other products used as wetting, detergent or emulsifying agents.

Some papers dealing with the production of the higher fatty alcohols, prior to the general introduction of the hydrogenation processes now so widely used, are included, but it is impractical to attempt to cover all of the possible processes for the production of all of the various alcohols and other organic hydroxy compounds of probable or actual interest or value in connection with the manufacture of synthetic detergent and related reagents. Some references in the related arts, which may be of interest in connection with the patent situation, are included.

As mentioned in the previous series of articles, the higher fatty alcohol detergents were the first really successful competitors of soap for many purposes, as well as for many new and special uses. The success of this group has lead to research in many other of the alcohol groups, even including the phenols, if we may consider them as aromatic alcohols.

The many patents covering the production of these newer alcohols, and their derivatives, developed particularly for use in the wetting, detergent and emulsifying fields, is some indication of the success in this direction. The patents will be reviewed in later papers. Several of the larger American chemical manufacturers already have products of this type on the market.

### Legal Situation

The present survey of this subject is not the first made by the author. Each such search naturally has added some further information on the subject. In this particular case, each review of the literature casts more doubt in the mind of the author upon the actual value of some of the patents covering certain fatty alcohol products.

It is almost true that "there is nothing new under the sun." Practically every new machine, process, compound, product, etc., is based upon that which has gone before, in the literature, patents, practical usage, arts, etc. Many patents cover the application of a collection of information, based upon prior knowledge, to give some more or less new product, process, machine, etc. Fortunately or unfortunately, as the case may be, it is often very difficult to decide just where the old leaves off, and the new discovery or actual invention begins. The granting of a patent is no guaranty that the process or product covered is either new or novel. It only means that it was new or novel in the always limited knowledge of the particular patent examiner handling the patent application. The patent itself is no guarantee of anything. It merely gives the inventor the right to sue an alleged infringer. The actual decision, both

as to the validity of the patent involved, as well as the infringement thereof, is a matter for decision by the courts. In this case, there is likely to be considerable argument, if it ever comes to trial.

The present list covers only up to the year 1937. The bibliography for 1937 will be published in 1938 and, on account of its greater interest, will cover as completely as is possible and practical the literature upon all of the wetting, detergent and emulsifying agents, the old as well as the new products. The list of references to the literature follows: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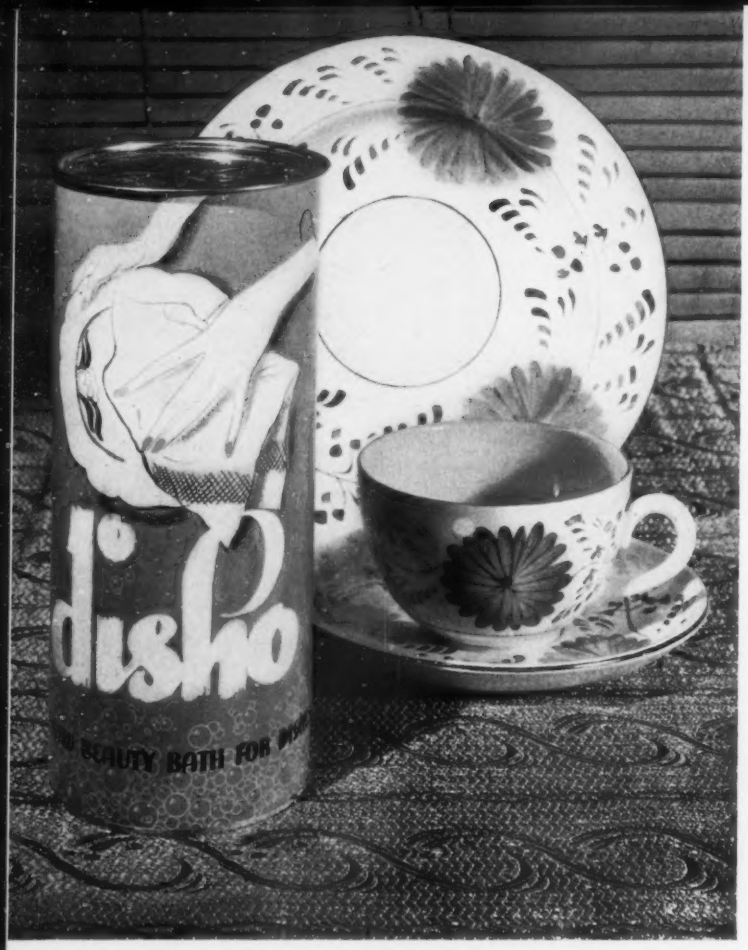
# New Products




A new product of M. Werk Co., Cincinnati, is "Disho" especially prepared for dishwashing. It is packed in an attractive can with a sprinkler top. Has been introduced in a limited territory to test possibilities of national distribution. Container by American Can Co.

"Speedy Wax" is a new du Pont product said to clean and wax a car in one operation. The gallon can for shop use is illustrated. A lithographed pint container will shortly be offered.

Front and back of the new container just adopted by Huntington Laboratories, Huntington, Ind., for "Sanaglow" furniture polish. National Can supplies this attractive metal container.

*and*

# *Packages*

The latest addition to the line of "Shinola" shoe dressings, made by Hecker Products Corp., New York, is "Shinola" gabardine cleaner. The texture of gabardine cloth is simulated in the package.

♦

A new device for quick and convenient opening of cartons is the "Fielder" made by Field Mfg. Co., New York. The product is molded of "Bakelite" by T. F. Butterfield, Inc. It carries an adjustable razor blade as a cutting edge.

Clifton Chemical Co., New York, has just introduced an innovation in pullman-type liquid soap dispensers. Washers have been eliminated, removing this important cause of trouble. Valve arrangements depend on metal-to-metal self-adjusting seats. Filled as illustrated.

# TURNER

**CAUSTIC POTASH**

**CARBONATE OF POTASH**

**CAUSTIC SODA**

**CHLORIDE OF POTASH**

**RED OIL**

**PETROLATUM** **WHITE OILS**

**INSECTI-SOL**

**(Colorless, odorless insecticide base)**

*Refined by Pennsylvania Refining Co., Butler, Penna.*

*For 75 years, the House of Turner has been serving users of chemicals.*

## JOSEPH TURNER & COMPANY

RIDGEFIELD, N. J.

83 EXCHANGE PL.
PROVIDENCE

630 FIFTH AVE., NEW YORK

40TH ST. & CALUMET
CHICAGO

# News....

### Borgen's Soap Incorporates

Borgen's Soap Co., Los Angeles, was recently incorporated in Los Angeles County, California, with 100 shares of capital stock. Directors of the new corporation are Fred. Sickmiller, Roundup, Mont.; D. R. Jackson and Stanley U. Immerman, both of Los Angeles. Attorneys are Simon and Garbus, with offices at 807 Equitable Bldg., Hollywood, Calif.

### Soap Radio Time Up in '37

The soap industry was the third largest user of radio time on the National Broadcasting Company's Blue and Red Networks in 1937, with expenditures of $3,392,383. This represents a 53.4 per cent increase over 1936. Largest user of time was the drug and toilet goods industry, with an expenditure of $13,322,990. The food and beverage industry was second, with $11,008,762.

### Sees No Decrease in Jobs

N. R. Whiting, economist for Procter & Gamble Co., Cincinnati, recently informed the special Senate Committee investigating the related problems of unemployment and relief that technological advances had not taken jobs from workers in the soap industry. "The soap industry is employing more men and paying higher wages now than in 1929," Mr. Whiting said. "From this it would appear, at least for the moment, that technological unemployment in the soap industry does not present a serious problem."

### Hewitt Adds Cincinnati Soap

Hewitt Soap Co., with factory and general offices at Dayton, Ohio, has recently completed the merger of Cincinnati Soap Co., Cincinnati, with its own organization. The New York office of Cincinnati Soap Co. has been moved in with those of the Hewitt concern, at 47 West 34th St., New York, where Martin F. Schultes, vice-president, has maintained offices for the past 16 years. Mr. Schultes is in charge of the toilet soap division of the combined companies.

### Argue Oilseeds Tax Cut

The reduced import tax rates on five oilseeds recommended by the sub-committee of the House Ways and Means Committee, at Washington, are a step in the right direction but still not low enough, according to John B. Gordon, secretary of the Bureau of Raw Materials for American Vegetable Oils and Fats Industries. Mr. Gordon, along with other spokesmen of industries affected by excise taxes, appeared recently before the House Ways and Means Committee to hear the recommendations of the sub-committee on tax revision.

### Adjust Fair Trade Prices

Resale prices have been adjusted in the midwest division, where fair trade laws are in force, partly because of a reduction in wholesale prices, it was said by E. H. Cooper, sales promotion manager for the Los Angeles Soap Company, of 617 East First street, Los Angeles, Calif. He denied reports, however, that the company has cancelled fair trade contracts in 24 states.

### Albany Soap Election

Joseph Grober was again named president and general manager of Albany Soap Corp., Albany, N. Y., at the annual meeting held Jan. 11. Other officers were also re-elected as follows: William C. Schopman, vice-president; William H. Geier, assistant manager; John H. Rea, treasurer; and Harry J. Geier, secretary.

### Manhattan Soap on the Air

Manhattan Soap Co., New York, maker of "Sweetheart Soap", is sponsoring a three-times-a-week radio show over station WEAF. The program is broadcast on Thursdays and Fridays from 9:30 to 9:40 A.M., and on Thursdays from 6:35 to 6:45 P.M., and presents William Scotti's Rhumba Orchestra.

### FTC Checks Indianapolis Soap

Indianapolis Soap Co., Indianapolis, Ind., trading as both Sanisoap Co., and W. W. Soap Mfg. Co., has been directed by the U. S. Federal Trade Commission to stop representing, by the use of fictitious price marks or any other means, that its soap, soap flakes, cleansers and soap powders have a retail value in excess of the prices at which they are actually sold to the consumer.

### Senator Charabot Dies

Senator Eugene Charabot, representative in the French Senate of the Alpes-Maritime Province, and a prominent figure in the perfuming raw material field as head of Charabot & Cie., Grasse, France, for many years, died in Paris late last month. Senator Charabot had long been well-known among American users of perfuming materials through his annual trips to the United States to visit his agents, Ungerer & Co., New York.

### Pinaud Wins Trademark Suit

Pinaud, Inc., French cosmetic concern, was awarded the decision in a suit contesting the right of ownership of the trademark "Eau de Quinine", in the United States District Court for the Southern District of New York recently. The decision terminated litigation instituted by Pinaud, Inc., against William Spero and Herman Arkus, trading under the firm names of Wendy Perfume

Co., and Fallis, Inc. Under the decree, the Court found that "Eau de Quinine" was a valid trademark belonging only to the House of Pinaud; that the defendants had unfairly competed with Pinaud and had infringed upon its trademark by selling a hair tonic not made by Pinaud called "Eau de Quinine", and by selling a toilet water called "French Lilac", a translation of Pinaud's trademark "Lilas de France."

### Weigh Lower Soap Tariff

Lower duties on imports of toilet soaps and soap powders from Great Britain, Newfoundland, and the British colonies are among the articles to be considered in a reciprocal trade agreement to be drawn up soon between the United States and Great Britain, according to advice from the State Department at Washington. The Committee for Reciprocity Information in that city has announced that it will receive briefs and applications up to Feb. 19, from industries who wish to protest against the lower tariffs to be followed by public hearings March 14. A report of the hearings will be filed with the Secretary of State, who will arrange for conferences between representatives of the United States and Great Britain to decide what tariffs will be reduced or eliminated. Inclusion of toilet soaps and soap powders in the list to be considered does not mean that a concession with respect to them will necessarily be granted, it was explained. Interested parties in the United States will be given full opportunity to present their views in writing and orally.

### Find New Use for Soap

Soap serves as a suitable means for separating specks of precious metals held imprisoned in ordinary materials according to the experiment station of the U. S. Bureau of Mines, in Washington. According to Karl Haworth, Bureau of Mines laboratory head, the use of ordinary soap suds to wash out the precious metals is not only efficient, but convenient.

### To Hold Drug Dinner Mar. 3

The 1938 Drug, Chemical and Allied Trades Dinner will be held Thursday, March 3rd at the Waldorf-Astoria Hotel, New York. The dinner will be attended by 2,000 men associated with the drug, chemical, and associate industries. Plans have been well formulated, with Ralph E. Dorland, eastern manager for Dow Chemical Co. as chairman of the reception committee. This committee of about seventy-five men will be active in introducing people who want to meet each other.

It is planned to get the dinner under way earlier this year. The reception and cocktail hour will start at six o'clock with the dining-room doors being opened at seven o'clock, and the dinner starting shortly after. Thus it is expected that the dinner and talks will be concluded by ten o'clock, giving ample time after the dinner for further social contacts. The price of the tickets is the same as last year, $8.00 per cover. Reservations should be made with Ray C. Schlotterer, secretary of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, 41 Park Row, New York. Mr. Schlotterer's telephone is COrtland 7-1414.

### Sanford Signs Stipulation

Sanford Products Corp., Cleveland, has agreed, under stipulations entered into with the U. S. Federal Trade Commission, to stop using on labels, cartons or otherwise, the words "Not an oil" or "Not a soap" as descriptive of "Sanford's Sheen Shampoo," when, according to the stipulation, the product is an oil soap.

### Little Retains Dr. Moore

Arthur D. Little, Inc., industrial chemists, Cambridge, Mass., recently announced the appointment of Dr. Ralph G. D. Moore to conduct research work under the Drycleaning Fellowship provided by the Institute for Maintaining Drycleaning Standards. Dr. Moore obtained his doctorate in 1936 at McGill University, Montreal, and has just completed a post-doctorate fellowship at the same university investigating soap-phenol-water systems, and their connection with the action of certain detergents in the purification of rayon wood pulp. His researches in drycleaning solvents will be under the supervision of the staff of Arthur D. Little, Inc., with the cooperation of a number of outside authorities.

### Palestine Soap Center Hit

Nablus, the Palestine soap center, has suffered severely as a result of the recent political strife, according to *The Palestine Post*. Unrest throughout the country has led to increased unemployment in Nablus. This all-Arab town depends entirely on the soap industry for its prosperity, about 25 factories being engaged in the trade. Some of these factories, like those of Haj Nimer en Nabulsi and Ahmed es Shakaa, manufacture on a large scale for export, while the smaller ones sell their products for the most part in Palestine. The soap manufactured by Nabulsi, wealthiest citizen of Nablus, is exported to Egypt, Syria, Irak and even to Europe. Soap sold outside Palestine brings Nablus an income of about $125,000 a year. Prices have increased this year due to the rise in price of olive oil, and also owing to the stocks of various centers being depleted. On the other hand, large numbers of workers who left the soap factories to work for higher wages in Jewish towns have now returned because of the industrial slump. As a result the intense competition of labor has forced wages down to about 50 cents a day.

### Asperls Offers Preferred

An offering to the public of 600 6 per cent preferred shares has been announced by Asperls Products Mfg. Co., Fairville, New Brunswick, Canada. Asperls Products is a new enterprise formed to manufacture and promote the sale of a permanent container with refills for tooth paste and shaving cream. The authorized capital of the company consists of $100,000 6 per cent cumulative preferred stock and 10,000 shares of no par value common stock.

# Cincinnati Soap Wins Point in Excise Tax Refund Suit

A DECISION in favor of Cincinnati Soap Co., Cincinnati, in its action against the government to recover excise taxes paid on refined coconut oil purchased prior to May 10, 1934, has just been handed down by Federal Judge Druffel of the U. S. District Court for the Southern District of Ohio, Western Division. At the time the tax went into effect Cincinnati Soap Co. had on hand a quantity of refined coconut oil, bought from another concern which had processed it prior to the effective date of the tax. A tax was assessed on the oil which the soap company paid under protest. Claim for refund was made, which was disallowed by the Commissioner of Internal Revenue. The soap company then filed a petition for refund, to which the government filed a demurrer. It is this demurrer that has just been overruled by Judge Druffel.

The position of the government was that the statute was intended to apply to the first domestic processing occurring *after* the effective date of the taxing statute. This interpretation of the law had been upheld by Judge Campbell in the case of Loose-Wiles Biscuit Co. v. Rasquin. Judge Druffel, however, rejected this possible legal precedent and held to the opinion that the law meant to tax only the *first* processing, ruling that if the first processing had been performed prior to May 10, 1934, subsequent processing was not taxable.

In handing down his decision Judge Druffel said that he was adopting the conclusions of law of Judge Barnes in the Armour tax refund suit, which was decided in Armour's favor. (Excerpts from these conclusions appear in an article in the January, 1938, issue of SOAP.—Editor.)

Judge Druffel also referred to another important consideration in tax theory, namely that in cases of doubt the taxpayer is to be given the benefit. He cited particularly the unanimous decision of the U. S. Supreme Court in Gould v. Gould where it was held "In the interpretation of statutes levying taxes it is the established rule not to extend their provisions, by implication, beyond the clear import of the language used, or to enlarge their operations so as to embrace matters not specifically pointed out. In case of doubt they are construed most strongly against the Government, and in favor of the citizen."

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### Soapwoman Buys Castle

Mrs. Violet Van der Elst, owner of the Shavex-Zeekol soap concern in England and Great Britain's best-known woman soap manufacturer, has purchased the large estate known as Harlaxton Hall, in Lincolnshire, England. She intends to equip the estate with gasproof and bombproof shelters for the benefit of the inhabitants of the surrounding district. Mrs. Van der Elst's crusades against capital punishment have made her an international figure.

◆

### Seek Aid for Cottonseed Oil

The National Cottonseed Products Association, at a meeting held at the Monteleone Hotel in New York last month, adopted resolutions advocating a decrease in Federal taxes on cottonseed oil. It was also decided to petition Congress to enact a plan for prorating foreign oils and fats after cottonseed oil production has been estimated.

◆

### Revise Manchukuo Tariffs

As a result of petitions submitted to the Government of Manchukuo by the Japan Soap Exporters Association, the Department of Finance in Hsinking has revised the import duties on soap, effective Jan. 1, 1938. Under the old tariffs there was a wide difference in the rates for laundry soap and toilet soap. Under the new rates the duty on toilet soap has been reduced from 30 per cent ad valorem to 22.5 per cent ad valorem, while the duty on laundry soap has been raised from 10 per cent ad valorem to 15 per cent. Details of the new rates are as follows:

Soap in bars, sheets and other solid forms.

| | |
|---|---|
| Toilet soap | 22.5% ad. val. |
| Laundry and family soap | 15.0% ad. val. |
| Other | 17.5% ad. val. |

Soap in powder, lump or piece.

| | |
|---|---|
| Toilet soap | 22.5% ad. val. |
| Laundry and family soap | 15.0% ad. val. |
| Other | 17.5% ad. val. |

Soap in liquid form.. 22.5% ad. val.

Other soaps.

| | |
|---|---|
| Potash soap | 15.0% ad. val. |
| Other | 20.0% ad. val. |

The tariff is non-preferential.

◆

### Enlarges Boston Branch

Fritzsche Bros., Inc., New York, announce the removal of their Boston Branch, formerly at 250 Stuart St., to larger quarters at 206 State St., in that city. The new location, which is in the heart of the wholesale supply section of Boston, allows for enlarged facilities so that the concern may carry in stock a complete line of their essential oils and aromatic chemicals. J. Pete Niles will continue as branch manager, assisted by Charles H. Milton and Arthur W. McKey.

◆

### Kyosai Soap in New Hands

Kyosai Soap Mfg. Co., Los Angeles, formerly owned by S. Kyosai, was purchased by J. S. Ando, on Jan. 4.

◆

### Tata to Build Soap Plant

Tata Oil Mills, Ltd., of India, announced plans recently for the construction of a large soap plant and a number of oil mills at Bombay.

You can do it with HS

Increase the silicate content and you decrease costs. Yet while you increase the profit margin you do not sacrifice quality, if you use **HS**. Because **HS**, when mixed with Standard Silicate, permits you to use less fatty acids, maintain the same sudsing power and improve quality and appearance! Isn't it worth serious consideration to investigate the merits of **HS**, since its use enables you to at last sell filled soap products at a genuine profit?

*Our technical staff will gladly tell you more about the economy of* **HS**. *Write us today!*

S-1

**STANDARD SILICATE DIVISION**
**Diamond Alkali Company**
**KOPPERS BUILDING • PITTSBURGH, PA.**
Plants at CINCINNATI · JERSEY CITY · LOCKPORT, N. Y. · MARSEILLES, ILL.

## Guenther Returns From Trip

Dr. Ernest S. Guenther, chief research chemist of Fritzsche Bros., Inc., returned to New York recently after an absence of eight months during which time he stopped at the Company's plant in Seillans, France, visited several other European countries and made extensive trips through western and eastern Africa. During his travels he covered nearly 30,000 miles, half of this distance by air. Dr. Guenther left New York in May, 1937, and went first to Seillans to supervise production of natural flower oils and to oversee construction of additions being made to the Fritzsche plant. Early in June he was joined by Ben F. Zimmer, Fritzsche vice-president, and together they drove through Switzerland, Germany and Italy.

In early July Dr. Guenther sailed from Marseille for Africa. His first stop was French Guinea where he drove through the principal centers of sweet orange oil production. He then flew to Morocco where he visited Morocco's new essential oil developments where thyme, pennroyal, origanum, myrtle and rosemary are being cultivated on an increasingly large scale. From Morocco he crossed Algeria and returned to the Fritzsche plant in Seillans in time to supervise production of the annual jasmine crop.

Early in September, Dr. Guenther commenced the second portion of his journey to cover the important essential oil developments in eastern Africa. He flew to Njoro for an investigation of the production of geranium oils, mahwa (a type of geranium) and the recently developed lavender plantations. A trip by automobile then took him through Kenya's wild game reserves to Nairobi. From this city he flew to Zanzibar where he investigated the clove situation. The next stop on his itinerary was at the Comoro Islands. Subsequently he spent several weeks at Nossi-Be making a survey on this island and neighboring parts of Madagascar of the production of oil of ylang-ylang, lemongrass, pepper and vanilla. From Nossi-Be he travelled to Tamatave on the eastern coast of Madagascar. He next visited Fenerive and there made a study of this important center of

Dr. Ernest S. Guenther

clove and cinnamon production. Returning to Tamatave, Dr. Guenther embarked for Reunion Island to make a survey of the situation with regard to geranium, vetiver and ylang-ylang oil production. From Reunion he commenced the return trip, reaching Zanzibar by steamer and from there back to France by plane.

## New Wrapper for P. & G. Brand

Procter & Gamble Co. recently adopted a wax wrapper in place of a paper wrapper for use on its "American Family" soap. This follows the adoption a short time ago of wax wrappers for "Ivory." Emphasis of advertising is upon "purity sealed" value of the waxed wrapper, and involves a shift in P & G advertising which had for many years urged housewives to buy soap by the case and to remove it from the wrapper in order that it might become hard and thus last longer.

## Climax Appoints Agency

Climax Cleaner Mfg. Co., Cleveland, maker of a wall paper cleaner, has appointed Roger Williams Co., that city, to handle its advertising. Newspapers and radio will be used.

## Organize "Bims" in N. Y.

"Bims" is the name of a new organization now being formed in New York, composed of executives in the toilet goods industry. Its purpose, according to Martin F. Schultes, of the New York office of Hewitt Soap Co., who is chairman of the new group, is to promote friendly relations among buyers, importers, manufacturers and salesmen in the industry. Membership is by invitation and will be limited to 100. Informal luncheons, dinners and golf outings will provide occasions for get-togethers.

## Soap Employment Index

The index of employment in the soap industry for December, 1937, compiled by the U. S. Dept. of Labor, registered 94.6 as compared with 100.4 in November, 98.8 in December, 1936, and 100 as the three-year average for the period 1923-1925. The payroll index for December, 1937, was 111.3, as compared with 116.9 in November and 104.3 in December, 1936.

## Publish Glycerin Report

L. Pasternak Co., New York, has just published a report containing detailed statistics on glycerin production in the United States. It lists production by years and months since 1919, gives import figures by countries, average prices, and information about tariffs and fat yields. Copies are available on request.

## Want Soap Flakes

A concern in Brussels, Belgium, is interested in purchasing soap flakes. Interested American firms may communicate with them through the U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C., mentioning Inquiry No. 1931.

## Oil Trades Hold Dinner

The quarterly meeting and dinner of the Old Trades Association of New York was held Jan. 25, at the Waldorf-Astoria Hotel, New York. Following the dinner, a floor show was presented.

# SIMON S. SELIG OF ATLANTA says—

THE SELIG COMPANY
INCORPORATED
Manufacturers
Disinfectants - Insecticides
Soaps - Sanitary Products
GENERAL OFFICES 120 SOUTH BROAD ST. LABORATORY AND WORKS 266 LATHROP ST.
Atlanta, Ga.
Western Branch Dallas, Texas
Importers and Distributors
January 12, 1938

Mr. A. L. Bobrick, President,
Bobrick Manufacturing Corporation,
215 Fourth Avenue,
New York, N.Y.

Dear Mr. Bobrick:

The Selig Company was established in June, 1896, and since then we have sold thousands of Soap Dispensers.

Our standardization on Bobrick Dispensers many, many years ago was due to the fact that they represent in our estimation the most mechanically perfect dispenser we have ever seen or handled.

Replete with all the practical features the Bobrick Dispensers are pre-eminent in the field and give complete user satisfaction.

Yours very truly,
THE SELIG CO.
President.

SSS:cr

With the new No. 7-A Model

## BOBRICK SOP-O-ZON DISPENSER

you, too, can give your customers complete user satisfaction. Write today for detailed description of this new model and literature describing thirty-one other SOP-O-ZON Dispensers.

## BOBRICK MANUFACTURING CORPORATION

111-117 SOUTH GAREY STREET
LOS ANGELES, CALIF.

G. H. WOOD & CO.
TORONTO
CANADIAN DISTRIBUTORS

215 FOURTH AVENUE
NEW YORK CITY

## P. & G. Reports Lower Profits

Procter & Gamble Co. reported a net profit of $4,340,348, equivalent to 65 cents a share on common stock, for the quarter ending Dec. 31, 1937. The profit includes $2,125,000 nonrecurring income received from license and patent settlements, and is after deductions for depreciation and Federal income taxes, but before surtax on undistributed earnings. This represents a decrease as compared with the preceding quarter ending Sept. 30, 1936, when the net profit reported was $5,044,338, equivalent to 76 cents a share on common stock; and a decrease as compared with the net profit in the December quarter of 1936, which amounted to $6,730,202, or $1.02 a share on common. Total net income for the six months ended Dec. 31, 1937, amounted to $9,384,686, or $1.40 a common share, compared with $13,359,766, or $2.03 a common share earned in the last half of 1936.

Sales representatives of Givaudan-Delawanna, Inc. from all parts of the United States gathered recently at the New York offices of the company, for their annual sales conference. The first few days were confined to sessions at which various new products and developments of the company were discussed. At the close a dinner was held in the Hotel Brevoort, attended by the sales representatives and executives of the company.

## Ban Glycols in Foods

Food flavors and flavor solvents containing diethyleneglycol and related glycols have been confiscated recently by the U. S. Food and Drug Administration, in a drive to ban all glycols as food ingredients. The drive is the result of recent deaths caused by elixir of sulfanilamide and attributed to the use of diethyleneglycol as a solvent. Confiscation of glycol containing products has been made under the provision of the food and drugs act prohibiting the use of added adulterants in foods.

## Appoints New Committees

W. Kedzie Teller, newly elected president of the Chicago Perfumery, Soap and Extract Association, has appointed the following committees to serve during 1938: Executive, A. A. Baffetti, T. E. Hanshaw, M. B. Vance and George A. Wrisley; entertainment, Chris Christensen and E. P. Scown, co-chairmen, C. A. Hammond, Thomas C. Sheffield, Ray Morris and O. H. Raschke; golf, G. F. Pauley, chairman, W. H. Jelly, W. H. Schutte, R. L. Holland and C. H. Cooper; publicity, J. M. Connors, chairman, W. R. Nay, A. F. Frantz, Harry Spohr and Thomas Morgan; legislative, Dr. J. B. Montenier, chairman, J. H. Helfrich, George A. Wrisley, Eugene Blomberg and Dr. B. T. Roberts; bowling, R. F. McClellan, chairman, S. J. Vance, C. Seguin, L. A. Solo and Al Burgh; membership, E. M. Tysdal, chairman, Frank Z. Woods, R. Platt, J. H. Beach and Joseph Gauer; luncheon, C. F. Brehmer, chairman, E. E. Brand, W. F. Kammerer, H. G. MacKay and R. A. Olson. It is expected that the committees will meet for the first time at a luncheon meeting early in February.

## Indian Firm Offers "Vitso"

National Soap & Chemical Co., Calcutta, India, has brought out a new vitamin soap, called "Vitso." It contains vitamin F, lecithin and cholesterin.

## Boody Opens Chicago Office

Irving R. Boody & Co., New York importers, recently announced the opening of an office at 105 West Adams St., Chicago. The new office will conduct a brokerage business in vegetable oils, fats and greases. It will be managed by William M. Mills, vice-president of the company.

## Leverhulme Visits U. S.

Viscount Leverhelmue, governor of Lever Bros. and Unilever, was a visitor in the United States recently, where he conferred with the committee on arrangements for the seventh International Congress on Scientific Management which is to be held in Washington next September. Viscount Leverhulme, who is president of the International Committee of Scientific Management and chairman of the British Management Council, will preside at the opening of the International Congress. While in the United States he warned fifty leaders of large-scale American business in a speech at a dinner in the Metropolitan Club, New York, against "leaving the solution of industrial problems too much to the politicians."

A line of monogrammed soaps has been placed on the market recently by Brand New Products Co., Los Angeles.

# ADVANCE THE "STYLING"

## with the METSO SEXTETTE!

**THE TREND** today is toward silicated cleaners—cleaners which contain larger proportions of Metso detergent alkalies. Buyers like them because of these qualities:

1. High active alkalinity
2. Silica content which restrains corrosive action
3. Sustained cleaning energy
4. Greater bactericidal effect than other sodium salts
5. Free rinsing qualities
6. Attractive appearance

Are you familiar with how a Metso detergent can improve your cleaner? Put more "go" power with a greater margin of safety into your brand with one of the Metso Sextette. Let's talk over your problem.

**PHILADELPHIA QUARTZ CO.**

General Offices and Laboratory: 125 S. Third St., Phila., Pa.
Chicago Sales Office: Engineering Bldg. Stocks in 60 cities.
Sold in Canada by National Silicates Ltd., Toronto, Ont.

**1. METSO GRANULAR.** Sodium Metasilicate, granulated product.

**2. METSO CRYSTALS.** Purest of Sodium Metasilicate. Uniformly sized crystals.

**3. METSO FINES.** Sodium Metasilicate, finely powdered.

**4. METSO 99.** Pure Sodium Sesquisilicate.

**5. METSO 22.** Integral combination containing Sodium Metasilicate.

**6. METSO 66.** Special Metasilicate cleaner for metals.

U. S. Pat. 1898707
U. S. Pat. 1948730

# Contracts Awarded

### Treasury Dept. Soap Bids

Emsee Mfg. Co., Monroe, Mich., was low bidder on 45,000 lbs. of laundry soap, in a recent opening by the Procurement Division of the U. S. Treasury Dept., at Washington, with a price of 6c. On 7,200 lbs. of toilet soap, Iowa Soap Co., Burlington, Ia., was low bidder with a price of 9.22c. On 60,000 lbs. of laundry soap, Kirkman & Son, Brooklyn, were low bidders with a price of 3.46c.

### Fort Mason Awards

On a quantity of laundry soap, Pioneer Soap Co., San Francisco, was awarded a contract at 7.7c, in a recent opening by the U. S. Army Quartermaster at Fort Mason, Calif. On a quantity of hand detergent, Tiedemann & McMorran, San Francisco, were awarded the contract at 8.989c. On a quantity of saltwater soap, Colgate-Palmolive-Peet Co., Berkeley, Calif., was awarded the contract at 3.58c. On a quantity of disinfectant, Sherwin-Williams Co., San Francisco, was awarded the contract at 48c.

### Benicia Arsenal Award

Colgate-Palmolive-Peet Co., Berkeley, Calif., was awarded the contract for 100,000 lbs. leather equipment soap at 5.24c, in a recent opening by the quartermaster at Benicia Arsenal, Calif.

### Navy Dept. Soap Bids

Procter & Gamble Dist. Co., Cincinnati, was low bidder on three lots of saltwater soap, 755,800 lbs. and 755,800 lbs. and 70,000 lbs., in a recent opening by the Bureau of Supplies and Accounts of the Navy Dept., at Washington, with prices of 3.91c, 3.7c, and 3.6c respectively. On two lots of 1,073,000 lbs. of saltwater soap each, Newell-Gutradt Co., San Francisco, was low bidder with prices of 3.5c and 3.3c. On two lots of 70,000 lbs. of salt water soap each, Colgate-Palmolive-Peet Co., Berkeley, Calif., was low bidder with prices of 3.42c and 3.48c. On two lots of carnauba wax, 20,000 lbs. each, E. A. Bromund Co., New York, was low bidder with prices of 32.85c and 33.95c. On two lots of ceresin wax, 10,000 lbs. and 20,000 lbs., E. A. Bromund was again low bidder with prices of 4.98c and 5.89c respectively.

### Brooklyn Soap Awards

Armour & Co., Chicago, were awarded contracts for 600,000 lbs. of laundry soap at 3.28c, and 150,000 lbs. of laundry soap powder at 6.19c in a recent opening by the quartermaster at Brooklyn, N. Y. On 200,000 lbs. of laundry washing soda, B. P. Ducas Co., New York, was awarded the contract, at 1.435c.

### Chicago Awards

J. B. Ford Sales Co., Wyandotte, Mich., was awarded a contract for 8,400 lbs. of laundry soda at 2.05c, in a recent opening by the quartermaster at Chicago. On 600 lbs. of naphthalene, Naphthalene Products Co., Birmingham, Ala., was awarded the contract at 8.45c.

### Low Soap Bidders

Sterling Supply Corp., Philadelphia, was low bidder on 150,000 lbs. of laundry soap for delivery to the Bureau of Supply, Treasury Dept., Washington, in a recent opening with a price of 6.42c. On 7,813 lbs. of toilet soap, Iowa Soap Co., Burlington, Ia., was low bidder with a price of 10.6c. On 4,992 lbs. of scouring powder, Keene Washing Products, Keene, N. H., was low bidder with a price of 2.3c.

### Chicago Soap Awards

Hunnewell Soap Co., Cincinnati, was awarded the contract for 500 10-oz. cakes of grit soap, in a recent opening by the U. S. Army Quartermaster at Chicago, at a price of 3c. Day & Frick, Philadelphia, were awarded contracts as follows: 12,000 10-oz. cakes of grit soap at 2.9c; 20,000 9-oz. cakes at 1.75c; and 250 9-oz. cakes at 1.75c.

### Milwaukee Soap Award

Swift & Co., Chicago, were awarded the contract for 5,140 lbs. of soap powder in a recent opening by the Army Engineers Corps at Milwaukee, Wis., at a price of $131.04.

### P & G Reduces Soap Prices

Procter and Gamble Co. reduced the prices on four of its major brands in the past month. The reductions range from 5 per cent to 7½ per cent, and include "Ivory," "Kirk's Hardwater Castile," "Selox," and "P&G Naphtha." The lower prices are the result of a drop in raw material costs.

### Packers Promotes Moore

Packers Tar Soap, Inc., New York, has appointed Lloyd R. Moore superintendent of the company's manufacturing plant at New London, Conn. Mr. Lloyd was formerly assistant superintendent.

### Agency for New Dorp Chemical

New Dorp Chemical Co., New Dorp., Staten Island, N. Y., has appointed Sternfield-Godley, Inc., New York, to direct its advertising for "Tri-S-P", a new water softener and cleanser.

### New D. & O. Price List

Dodge & Olcott Co., New York, has just published a new price list for its line of essential oils, oleo resins, aromatic chemicals, and kindred products. Copies available on request.

### Drug Assn. to Meet in May

The American Drug Manufacturers Association will hold its next annual meeting at White Sulphur Springs, W. Va., May 2nd to 5th. A special program by the Sales and Advertising Problems Committee is being planned.

# EVEN BUGVILLE DEMANDS BETTER FRAGRANCE!

## MAKE BUGVILLE HAPPY—*give it a better fragrance to die with;*
## MAKE THE HOUSEWIFE HAPPY—*give her a better fragrance to live with!*

THIS latter objective has had the fixed attention of our Laboratories since the earliest application of chemistry to insect pest control. Today, as a consequence, we offer the manufacturer of fly sprays and insecticides a most comprehensive service—one that assures him correctly odored products of added distinction and appeal.

The coming season, we believe, will afford every manufacturer greater opportunity for increasing sales. Competition, however, will be keener and it is to meet this situation that our services and experience can be of value. You might, for instance, let us check your present product for what we know to be the coming trend. This involves no obligation—merely requires that you send us two samples, one plain and the other perfumed, which we shall gladly analyze. If it can be improved, we'll offer suggestions; if not, we'll say so frankly. Time is short, but we can still help you if you act now. Why not write us, *today?*

For those manufacturers who prefer to work out their own compositions, we have available a variety of inexpensive but efficient Lethane deodorants, fly spray and insecticide perfumes, both floral and bouquet. Your request will bring full details.

**FRITZSCHE Brothers, inc.**

816 WEST 8TH STREET LOS ANGELES, CAL.
Proprietors of PARFUMERIES de SEILLANS Seillans, France
FRITZSCHE BROTHERS, of Canada, Ltd., 77-79 Jarvis St., Toronto, Canada

PORT AUTHORITY COMMERCE BLDG.
76 NINTH AVENUE, NEW YORK, N. Y.
118 WEST OHIO ST CHICAGO, ILL

# A *Fritzsche* PRODUCT for EVERY PURPOSE . . .

- **ESSENTIAL OILS**

  These basic materials are, as they should be, the finest that modern methods and scientific skill can produce—oils of the very highest purity and dependability.

- **AROMATIC CHEMICALS**

  Each item in this group represents a degree of purity and quality that assures finer aromatic effects **plus** the advantage of material economy.

- **FIXATIVES**

  We urge manufacturers to consult us in the selection of their fixatives. With many to choose from, there is always that one which will produce better results in a given case. Let us assist you in your choice.

- **BATH SALT PERFUMES**

  Combining perfume and color, our delightful Bath Perstels greatly simplify and facilitate the process of manufacture. Very economical. Send for details and complete list of blends.

- **DENTAL AND ORAL FLAVORS**

  The flavors in this group are of a special character, carefully blended to impart pleasant, clean, refreshing taste effects. Consult us for these or for the creation of exclusive flavor blends.

- **DEODORIZING COMPOUNDS**

  The use of **good** deodorizing compounds in technical products such as para blocks, naphthalene, cleansers, waxes, polishes, solvents, diluents, etc., is one of the best investments a manufacturer can make. For effective, low cost coverage we offer Neutroleum, Safrella, Javollal, Methalate "C", and others.

- **INSECTICIDES AND DISINFECTANTS**

  Note our advertisement on opposite page,—then investigate our improved line of odors. Each item in this group embodies the latest advances in scientific perfuming.

- **TOILET SOAP COMPOUNDS**

  A large group of perfumes especially prepared to meet the exacting requirements of soap manufacture. Exquisite scents at minimum cost. Send for particulars.

- **LIQUID SOAP AND SHAMPOO PERFUMES**

  These perfumes are highly soluble and mix readily with liquid soaps. Quantity required governed by cost limits and strength of odor desired.

- **SOAP COLORS**

  We can supply soap colors to produce any desired tint. For specific recommendations, send us description or sample of color to be matched.

- **ANTI-OXIDANTS**

  Highly important to the soap manufacturer are our newly developed preservatives for soaps, animal and vegetable fats and oils. Write us for details concerning OXIDEX.

**SEND FOR SAMPLES**


### Signs FTC Stipulation

Guaranteed Products, Inc., New York, engaged in the sale of "Blondex Shampoo", "Blondex Golden Rinse", and "Blondex Hair Tonic", has agreed, under stipulations entered into with the U. S. Federal Trade Commission, to cease advertising that any of these products will keep the hair healthy; or that "Blondex Shampoo" or "Blondex Rinse" are not dyes or bleaches; or that a shampoo with "Blondex" will have the same effect as a sun bath and is effective as a remedy for hard or brittle hair.

### Essential Oil Assn. Elects

New officers of the Essential Oil Association of U. S. A., elected at the annual meeting held last month at the Hotel Warwick, New York, are Harry C. Ryland, H. C. Ryland, Inc., president; Charles Fischbeck, Charles Fischbeck & Co., vice-president; Robert B. Magnus, Magnus, Mabee, and Reynard, Inc., secretary-treasurer; V. H. Fischer, Dodge and Olcott Co., and William Schilling, Jr., Norda Essential Oil & Chemical Co., members of executive committee.

### Erect Olive Oil Plant

G. Maselli & Sons, West Coast wine, oil and vinegar manufacturers, recently began the construction of a $35,000 plant at Bakersfield, Calif., for extracting olive oil from olive oil press pulp. The Maselli olive oil output, it is reported, has been sold for several years ahead to large soap manufacturing plants in the Los Angeles district.

### Mennen to Increase Promotion

F. S. Dieterich, merchandising manager of Mennen Co., Newark, N. J., has announced an increased appropriation for 1938 in all fields of merchandising promotion.

### Lever Adds Canadian Stations

Lever Bros. recently added 26 Canadian stations to the two half-hour radio shows which they sponsor, starring Al Jolson and Edward G. Robinson.

*You can save on*

# PERFUMING COSTS

## . . . and still maintain quality

BERGAMOT ARTIFICIAL NORDA is the answer. It meets the most exacting requirements . . . and in view of the present high price of the natural oil, BERGAMOT ARTIFICIAL NORDA offers a material saving in perfuming cost without sacrifice of quality.

*Ask NORDA for further details.*

Norda

**ESSENTIAL OIL and CHEMICAL COMPANY**

*Chicago Office*
325 W. Huron St.

*Los Angeles Office*
685 Antonia Ave.

*St. Paul Office*
Pine and E. 3rd St.

*Canadian Office*
119 Adelaide St., W., Toronto

*New York Office*
601 West 26th St.

*Southern Office*
Candler Annex Bldg., Atlanta, Ga.

# New Trade Marks

The following trade-marks were published in the January issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

## Trade Marks Filed

LECTRO-KLEENER — This in solid letters describing cleaner. The word "Kleener" is disclaimed apart from the mark. Filed by Black & Decker Mfg. Co., Towson, Md., Aug. 23, 1937. Claims use since Aug. 1, 1937.

PENNSHAVE — This in solid script describing brushless shaving cream. Filed by Pennshave Products, New York, Sept. 2, 1937. Claims use since July 15, 1937.

STAY-UP—This in solid letters describing shaving lotion and soap. Filed by Pinaud, Inc., New York, Sept. 8, 1937. Claims use since Aug. 10, 1937 as lotion: since Sept. 2, 1937 as soap.

HYDRASOL—This in solid letters describing liquid detergent. Filed by Bennet, Inc., Cambridge, Mass., Sept. 25, 1937. Claims use since June 3, 1937.

SPARITE—This in solid letters describing cleaner. Filed by Tri-State Development Corp., Burnsville, N. C., Sept. 30, 1937. Claims use since May 25, 1934.

COLPRO—This in solid letters describing laundry detergent. Filed by Clarence M. Cobb, Boston, Oct. 23, 1937. Claims use since Sept. 17, 1937.

IGEPAL—This in solid letters describing scouring agent. Filed by General Dyestuff Corp., New York, Sept. 23, 1937. Claims use since June 22, 1937.

DIS FOR DISHES—This in solid letters, with the words "For Dishes" superimposed in smaller type on "Dis," describing cleaning compound. The words "For Dishes" are disclaimed apart from the mark. Filed by V. C. Products Co., Philadelphia, Oct. 30, 1937. Claims use since June 1, 1936.

ERUSTOLAX—This in solid letters describing cleaning agent. Filed by Sterling Products Co., Easton, Pa., Nov. 10, 1937. Claims use since Jan. 1932.

CARNIVAL—This in solid letters on drawing of string of jack-o-lanterns describing complexion soap. Filed by Federated Foods, Inc., Chicago, Nov. 19, 1937. Claims use since Oct. 22, 1937.

ERUSTO—This in solid script describing cleaner. Filed by Sterling Products Co., Easton, Pa., Nov. 22, 1937. Claims use since March 5, 1913.

CONTRA CREME—This in solid letters describing antiseptic. Filed by Contra Creme & Diaphragm Co., Severna Park, Md., July 8, 1937. Claims use of the mark since April 19, 1936.

BRACE.— This in solid script describing tooth paste and antiseptic. Filed by McKesson & Robbins, Inc., Fairfield, Conn., Oct. 7, 1937. Claims use of the mark since Sept. 17, 1937.

GLISSEN—This in solid letters describing shampoo. Filed by Campana Corp., Batavia, Ill., Oct. 11, 1937. Claims use of the mark since Sept. 27, 1937.

SUMMER-TEX — This in solid letters describing insecticides and fungicides. Filed by Sherwin - Williams Co., Cleveland, Ohio, Oct. 28, 1937. Claims use of the mark since Sept. 27, 1937.

JO—This in solid letters, forming central portion of line drawing of figure, describing insecticide. Filed by John Opitz, Inc., Long Island City, N. Y., Nov. 19, 1937. Claims use since April 15, 1937.

BLINK—This in reverse script within solid circle describing automobile cleaner. Filed by Blink Auto Products, San Diego, Calif., Sept. 10, 1937. Claims use of the mark since Aug. 5, 1937.

CHLORO-HEXOL—This in solid letters describing antiseptic. Filed by Frederick Stearns & Co., Detroit, Nov. 8, 1937. Claims use of the mark since Oct. 28, 1937.

IMAGINATION — This in solid letters describing shampoos and disinfectants. Filed by Maison-Joubert, Inc., New York, Nov. 2, 1937. Claims use since Oct. 22, 1937.

VITEF—This in solid letters describing shampoo. Filed by Davies-Young Soap Co., Dayton, O., Nov. 8, 1937. Claims use since Oct. 25, 1937.

UREBA—This in outline letters beneath drawing symbolic of an Egyptian princess, the whole enclosed in decorative border, describing shampoos, tooth pastes, antiseptics. Filed by United Western Laboratories, Inc., Denver, June 10, 1937. Claims use of the mark since Aug. 4, 1937.

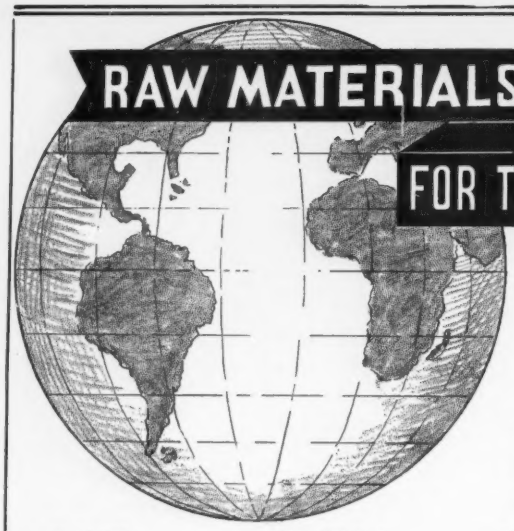
NEUTROX—This in solid letters describing dentifrice. Filed by Vick Chemical Co., New York, Nov. 1, 1937. Claims use since Sept. 1, 1930.

EXPECTATION — This in solid letters describing shampoos, tooth pastes, disinfectants. Filed by Maison-Joubert, Inc., New York, Nov. 2, 1937. Claims use since Oct. 22, 1937.

ASTOREX — This in solid letters on reverse plate describing insecticide. Filed by Astor Exterminating Co., Boston, Oct. 23, 1937. Claims use since March 24, 1936.

SKIN-GUARD—This in outline letters over drawing of palm of a hand, describing antiseptic. Filed by H. A. Montgomery Co., Detroit, Nov. 17, 1937. Claims use since Oct. 27, 1937.

WINDSOR HOUSE — This in solid script describing shampoo. Filed by Nassour Bros., Los Angeles, July 10, 1937. Claims use since Sept. 21, 1936.



OILS FATS
CHEMICALS
FATTY ACIDS

# RAW MATERIALS FOR THE SOAP INDUSTRY FROM ALL PARTS OF THE WORLD

## 1838—1938

The start of this new year marks the 100th anniversary of Welch, Holme & Clark Co.,—100 years of service to the soap industry—100 years of experience in the job we strive to do.

Castor Oil
Cocoanut Oil
Corn Oil
Cottonseed Oil
Palm Oil
Palm Kernel Oil
Olive Oil
Olive Oil Foots
Peanut Oil
Perilla Oil
Rapeseed Oil
Sesame Oil
Soya Bean Oil
Teaseed Oil
Fatty Acids
Lard Oils
Neatsfoot Oil
Oleo Stearine
Stearic Acid
White Olein
Tallow
Grease
Lanolin
Caustic Soda
Soda Ash
Caustic Potash
Carbonate Potash
Sal Soda
Modified Soda
Silicate Soda
Metasilicate
Tri Sodium Phosphate
Di Sodium Phosphate
Chlorphyll
"CEREPS" Superfatting Agent

## WELCH, HOLME & CLARK CO., Inc.

563 GREENWICH STREET — ESTABLISHED 1838 — NEW YORK CITY

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YEARS
SUPPLYING THE SOAP
AND ALLIED
INDUSTRIES

Commercial Olive Oil
Olive Oil Foots Teaseed Oil
Red Oil (Oleic Acid) Mustard Oil

*We invite your inquiries regarding the above products*

E. M. SERGEANT
PULP & CHEMICAL COMPANY
Empire State Building :: New York, N. Y.
*Established 1867*

PHONE-GENE — This in solid letters with drawing of telephone, describing germicide. Filed by Baro Laboratories, Buffalo, Oct. 9, 1937. Claims use since Aug. 1, 1937.

O. M. 41—This in solid letters describing antiseptic. Filed by Smith Laboratories Corp., Kansas City, Oct. 13, 1937. Claims use since July 30, 1937.

DISHO—This in outline script describing household cleaner. Filed by M. Werk Co., St. Bernard, Ohio, Oct. 14, 1937. Claims use since Oct. 7, 1937.

BURMANITE—This in solid letters describing cleansing powder. Filed by Albert J. Burman, Kansas City, Oct. 25, 1937. Claims use since Oct. 10, 1937.

URICIDE—This in solid letters describing cleaner. Filed by Lightning Chemical Co., Raynor Heights, Md., Nov. 17, 1937. Claims use since Feb. 15, 1937.

MONCO FLUSH-IT — This in outline letters describing cleaning fluid. Filed by H. A. Montgomery Co., Detroit, Nov. 17, 1937. Claims use since Oct. 27, 1937.

MONCO—This in outline shadow letters describing cleaning compound. Filed by H. A. Montgomery Co., Detroit, Nov. 17, 1937. Claims use since Oct. 9, 1937.

SUNNY PALM — This in solid letters with drawing of palm tree, describing soap. The word "Palm" is disclaimed apart from the mark. Filed by Federated Foods, Inc., Chicago, Nov. 19, 1937. Claims use since Oct. 22, 1937.

VOL—This in solid letters describing cleaner. Filed by Volcocite Corp., Philadelphia, Nov. 19, 1937. Claims use since April, 1937.

KA-BO—This in solid letters describing shoe cleaners. Filed by Wilkey Laboratories, Chicago, June 14, 1937. Claims use since Feb. 10, 1914.

C-2 — This in outline letters superimposed on geometric design, describing cleaner. Filed by Harold G. Valentine Co., Randolph, Mass., Aug. 26, 1937. Claims use since May 1, 1936.

PAISLAY—This in solid script describing shaving soap. Filed by Walgreen Co., Chicago, Sept. 11, 1937. Claims use since Oct. 7, 1937.

GLOPANE—This in solid letters describing window cleaner. Filed by Bloomingdale Bros., New York, Sept. 20, 1937. Claims use since Aug. 6, 1937.

MULTI-FILM — This in solid letters describing insecticidal spreaders. The word "Film" is disclaimed apart from the mark. Filed by Hercules Glue Co., San Francisco, May 25, 1937. Claims use since April 15, 1937.

SUZ—This in solid letters describing shampoo. Filed by Marinello Corp., New York, July 23, 1937. Claims use since July 15, 1937.

M—This in solid letter set in oval design describing deodorizer. Filed by H. A. Minor, Jeddo, Pa., July 30, 1937. Claims use since July 20, 1937.

TUB TONE—This in solid letters describing water softener. Filed by Franklin Simon & Co., New York, Oct. 2, 1937. Claims use since July 9, 1937.

JAP-RO-CIDE — This in solid letters describing insecticide. Filed by Andrew Wilson, Inc., Springfield, N. J., Oct. 2, 1937. Claims use since July 18, 1936.

FURNICURE—This in solid outline letters on reverse plate describing furniture polish. Filed by Church Aid Society, Meadville, Pa., Nov. 3, 1937. Claims use since Oct. 25, 1937.

## Trade Marks Granted

353,087. Insecticides. Lewy Chemical Co., New York. Filed July 29, 1936. Serial No. 381,567. Published Oct. 19, 1937. Class 6.

353,163. Shampoo Preparations. John H. Breck, Inc., Springfield, Mass. Filed July 9, 1937. Serial No. 395,012. Published Oct. 19, 1937. Class 6.

353,194. Insecticide. Nott Mfg. Co., New York. Filed July 23, 1937. Serial No. 395,575. Published Oct. 12, 1937. Class 6.

353,224. Insecticide. Jack Cramer, San Jose, Calif. Filed Aug. 5, 1937. Serial No. 396,027. Published Oct. 19, 1937. Class 6.

353,267. Insecticides. Sherwin-Williams Co., Cleveland. Filed Aug. 18, 1937. Serial No. 396,549. Published Oct. 12, 1937. Class 6.

353,270. Liquid Dentifrice. Flodent Products Co., Baltimore. Filed Aug. 20, 1937. Serial No. 396,603. Published Oct. 12, 1937. Class 6.

353,436. Shampoo. Coronado Mfg. Co., St. Paul, Minn. Filed March 16, 1935. Serial No. 362,631. Published Aug. 13, 1935. Class 6.

353,443. Insecticides. Lewy Chemical Co., New York. Filed June 23, 1936. Serial No. 380,112. Published Nov. 2, 1937. Class 6.

353,444. Insecticides. Lewy Chemical Co., New York. Filed June 23, 1936. Serial No. 380,113. Published Nov. 2, 1937. Class 6.

353,445. Insecticides. Lewy Chemical Co., New York. Filed June 23, 1936. Serial No. 380,114. Published Nov. 2, 1937. Class 6.

353,459. Antiseptic. Hamilton Chemical Co., Sheboygan, Wis. Filed Oct. 26, 1936. Serial No. 384,826. Published Nov. 2, 1937. Class 6.

353,474. Insecticides. Midway Chemical Co., Jersey City. Filed Feb. 15, 1937. Serial No. 388,952. Published Nov. 2, 1937. Class 6.

353,522. Shampoos. Faberge Inc., New York. Filed July 3, 1937. Serial No. 394,832. Published Nov. 2, 1937. Class 6.

353,536. Insecticide. Hercules Powder Co., Wilmington, Del. Filed July 16, 1937. Serial No. 395,293. Published Nov. 2, 1937. Class 6.

353,537. Automobile Polish. Mirrorwax Co., Danvers, Mass. Filed July 17, 1937. Serial No. 395,376. Published Nov. 2, 1937. Class 16.

353,623. Germicide. New Products Corp., Indianapolis, Ind. Filed Aug. 20, 1937. Serial No. 396,609. Published Nov. 2, 1937. Class 6.

353,625. Insecticide. Zonite Products Corp., New York. Filed Aug. 21, 1937. Serial No. 396,654. Published Nov. 2, 1937. Class 6.

# THESE *are among our many* Specialties

**ISCO**

CHLORIDE OF LIME
(Bleaching Powder)
35/37% free flowing—high test

CAUSTIC POTASH—available in Solid. Fused 88/92% and 85% Flake 88/92% Granular—Broken—Powdered Liquid—Clarified 45%

CAUSTIC SODA—in Flake 76%—Solid 76%—Crystals 76%—Liquid 50% solution

**ISCO WAXES**

BEESWAX —Pure Yellow Refined
Pure White Sunbleached

CARNAUBA —Pure Refined
Flake and Lump

CANDELILLA—Pure Double Refined
Flake and Lump

*Samples, quotations and further information gladly sent on request.*

Mark your calendar to attend the Banquet of the Drug, Chemical and Allied Trades, Waldorf-Astoria, New York, Thursday, March 3rd.

**INNIS, SPEIDEN & CO.**
*Manufacturers and Importers*
117 Liberty Street New York
BOSTON · PHILADELPHIA · CLEVELAND · CHICAGO
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# 15 Reilly PLANTS

*To Serve You* PROMPTLY *and* DEPENDABLY

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**CRESOL**
**CRESYLIC ACID**
**CRESOL U.S.P.**
**TAR ACID OILS**
**XYLENOL**
**NAPHTHALENE**

•

*and other Coal Tar Products for the* SOAP *and* DISINFECTANT *Industry*

**REILLY ROOFING AND WATERPROOFING MATERIAL**

Reilly roofing and waterproofing materials will protect your plant in the same dependable way Reilly chemicals and oils protect the quality of your product. When you need Roofing Felt, Roofing Pitch or Roofing Tar—Waterproofing Felt, Pitch or Paint—specify Reilly Prices and particulars on request.

**REILLY TAR & CHEMICAL CORPORATION**
Merchants Bank Bldg., Indianapolis
2513 S. Damen Ave., Chicago
500 Fifth Ave., New York

# Raw Material Markets

**(As of January 29, 1938)**

NEW YORK—The market for soap raw materials this period was characterized on the whole by advances in quotations and a general improvement in the tone of the market. Advances outnumbered reductions. Although many consumers were still disposed to adhere to a conservative course in making purchases, in some cases the call for small or moderate quantities showed a considerable increase over last month. In not a few instances orders were accompanied by requests for prompt shipment. Coconut oil advanced, as did greases, palm oil and tallow. Tallow especially was stronger, sales being reported at an advance, with offerings light on the rise. Fatty acids were generally firm. Among the heavy chemicals, the rise in sodium silicate was a feature.

## OILS AND FATS

### Tallow

Consumers manifested a greater interest in the market as a result of the upward trend recently of other fats and greases. Sales for extra tallow closed at 6½c per pound, an increase of ⅝c in the period. On the rise offerings were light and the tone of the market remained firm.

### Coconut Oil

The market became firmer toward the end of the period, and at the close showed an advance of ⅛c per pound. The advance was attributed to recent developments in competing products, as well as the firmness of copra. Later in the period buying interest seemed to be slacking off and to some the undertone of the market appeared to be easier.

### Olive Oil

Foots met with a fair inquiry for moderate lots and the market was steady. Denatured oil met with a somewhat better demand, though consumers showed little disposition to purchase in advance of current needs.

### Palm Oil

Prices advanced ⅜c per pound on offerings for shipment. Inquiries were received more numerously, the upward trend of other commodities stimulating buying interest to some extent.

## PERFUMING MATERIALS

### Citronella Oil

Citronella prices dropped slightly in the Ceylon grade, while there was no change reported in quotations for Java grades. Prices lacked a tendency toward fluctuation. Improvement in demand was expected to come soon.

### Lemon Oil

Messina lemon oil registered a sharp advance in this period. At closing it was being quoted at $3.35 to $4.00 per pound. A rumor to the effect that the producers in Italy had formed a combine was at first held responsible for the rise. This was later discounted when word from Italy declared that the combine had fallen through. Late reports indicate, however, that Italian production will be lower than was expected, and this factor exerted a marked influence on the strength of the Italian oil. Demand for California oil rose sharply, and enjoyed a distinct price advantage over the Italian.

## MISCELLANEOUS

### Pyrethrum

The insect powder market saw a slight advance in prices during the period, extract prices also moved upward.

### Rosin

Southern and local markets for rosin held a firmer tone during the period, the trend of prices being upward. Foreign takings of rosin were on a fair scale, while some improvement was also reported in domestic demand.

### Waxes

Quotations on various grades of beeswax rose slightly, while carnauba wax moved lower. There was quite a difference in prices quoted by various agents and brokers handling business direct with the primary market during the period.

### Sodium Silicate

Prices for the 52-degree were 5c per 100 pounds higher, while the 40-degree quotations were unchanged.

—— ♦ ——

### Offer New Waterproof Wax

Buckingham Wax Corp., Long Island City, N. Y., has just introduced a new waterproof no-rubbing wax to the trade. It is said to be waterproof within an hour after application. It is sold either under private brand or the Buckingham label. Irving Wexler, head of Buckingham Wax, advises that the new product is the result of research by his laboratory staff. Other products in the Buckingham line include liquid polishing waxes, paste wax, dance wax, white emulsion furniture polish, floor seals, mopping varnish, bowling alley polish and cleaner.

—— ♦ ——

### Soil-Off Appoints Agency

Soil-Off Mfg. Co., Glendale, Calif., makers of "Soil-Off" cleaning fluid for walls, floors and fireplaces, has appointed Gerth-Knollin Advertising Agency, Los Angeles, to direct its advertising.

—— ♦ ——

### Schiect-Lever Buys Saponia

Schiect-Lever Co., Osijek, Jugoslavia, affiliate of Lever Bros., Port Sunlight, England, has acquired the soap plant and goodwill of Saponia Soap Works Co., also of Osijek.

—— ♦ ——

### Lemmermeyer Back on Job

Michael Lemmermeyer, of Aromatic Products, Inc., New York, has recovered from the effects of a recent operation for appendicitis, and has returned to his office.

# RAW MATERIALS

ALCOHOL
AMMONIA
BLEACHING POWDER
BORAX
BICARBONATE OF SODA
CARBON TETRACHLORIDE
CALCIUM CHLORIDE
CAUSTIC SODA
CAUSTIC POTASH
DYES
DISODIUM PHOSPHATE
GLAUBERS SALTS
GLYCERINE
METASILICATE
OXALIC ACID
POTASSIUM CARBONATE
SAL AMMONIAC
SALT
SAL SODA
SILICATE OF SODA
SODA ASH
TRISODIUM PHOSPHATE

## GLISYN

Inquiries solicited on this low price glycerine replacement.

Every raw material necessary for the manufacture of soap and allied products is carried in stock, and available at the right price for immediate delivery to your door.

**OLIVE OIL FOOTS** • **COCOANUT OIL**

**OLIVE OIL** • **TALLOW**

CASTOR OIL
COCOANUT OIL
CORN OIL
COTTONSEED OIL
LARD OIL
NEATSFOOT OIL
OLEIC ACID
RED OIL
OLIVE OIL
OLIVE OIL FOOTS
PALM OIL
PALM KERNEL OIL
PEANUT OIL
RAPESEED OIL
ROSIN
SALAD OIL
SOYA BEAN OIL
SESAME OIL
TEASEED OIL
WHITE OLEINE
FATTY ACIDS
STEARINE
STEARIC ACID
GREASE
TALLOW

**CAUSTIC SODA** iEi **CAUSTIC POTASH**

Direct New York Telephone CHickering 4-7533 — Members New York Produce Exchange

DRUMS
TANK CARS

## EASTERN INDUSTRIES, INC.

**Vegetable Oils, Animal Oils, Fats, Chemicals**

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TANK
WAGONS

# KRANICH SOAPS

Any combination of these KRANICH Pure Powdered Soaps mixed and blended to meet your individual requirements. Why not discuss your powdered soap problem with us?

**POWDERED CASTILE U.S.P.**
**POWDERED PALM OIL**
**POWDERED CASTOR OIL**
**POWDERED COCONUT OIL**
**POWDERED WHITE NEUTRAL**

Also a complete line of KRANICH QUALITY soft and liquid soaps and shampoos.

## KRANICH SOAP COMPANY, Inc.

54 Richards Street — Brooklyn, N. Y.

# Raw Material Prices

(*As of January 29, 1938*)

**Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.**

## Chemicals

| | | | |
|---|---|---|---|
| Acetone, C. P., drums | lb. | $ .06 | $ .06½ |
| Acid, Boric, bbls., 99½% | ton | 95.00 | 100.00 |
| Cresylic, drums | gal. | .89 | .93 |
| Low boiling grade | gal. | .92 | .96 |
| Oxalic, bbls. | lb. | .11½ | .12¼ |
| Adeps Lanae, hydrous, bbls. | lb. | .16 | .18 |
| Anhydrous, bbls. | lb. | .17 | .19 |
| Alcohol, Ethyl, U. S. P., bbls. | gal. | 4.14 | 4.19 |
| Complete Denat., SD 1, drums, ex. | gal. | .32 | .37 |
| Alum. Potash lump | lb. | .03½ | .03¾ |
| Ammonia Water, 26°, drums | lb. | .02¼ | .02½ |
| Ammonium Carbonate, tech., bbls | lb. | .08 | .12½ |
| Bentonite 1 | ton | — | 16.60 |
| Bentonite 2 | ton | — | 11.00 |
| Bleaching Powder, drums | 100 lb. | 2.25 | 2.60 |
| Borax, pd., cryst., bbls., kegs | ton | 47.00 | 67.00 |
| Carbon Tetrachloride, car lots | lb. | — | .05¼ |
| L. C. L. | lb. | .07 | .08 |
| Caustic, see Soda Caustic, Potash Caustic | | | |
| China Clay, filler | ton | 10.00 | 25.00 |
| Cresol, U. S. P., drums | lb. | .12 | .12½ |
| Creosote Oil | gal. | .13½ | .14 |
| Feldspar (200 to 325 mesh) | ton | 14.00 | 15.00 |
| Formaldehyde, bbls. | lb. | .05¾ | .06¼ |
| Fullers Earth | ton | 15.00 | 24.00 |
| Glycerine, C. P., drums | lb. | .15½ | .16 |
| Dynamite, drums | lb. | .15½ | .16 |
| Saponification, drums | lb. | .10 | .10½ |
| Soap, lye, drums | lb. | .09 | .09½ |
| Hexalin, drums | lb. | — | .30 |
| Kieselguhr, bags | ton | — | 35.00 |
| Lanolin, see Adeps Lanae. | | | |
| Lime, live, bbls. | per bbl. | 1.70 | 2.20 |
| Mercury Bichloride, kegs | lb. | 1.15 | 1.30 |
| Naphthalene, ref. flakes, bbls. | lb. | .07¼ | .07½ |
| Nitrobenzene (Myrbane) drums | lb. | .09 | .11 |
| Paradichlorbenzene, bbls., kegs | lb. | .12½ | .14½ |
| Petrolatum, bbls. (as to color) | lb. | .02 | .07¼ |
| Phenol, (Carbolic Acid), drums | lb. | .13¼ | .14¼ |
| Pine Oil, bbls. | gal. | .70 | .85 |
| Potash, Caustic, drums | lb. | .06¼ | .06½ |
| Flake | lb. | .07 | .07¼ |
| Potassium Carbonate, solid | lb. | .07¼ | .09½ |
| Liquid | lb. | .03½ | .03¾ |
| Pumice Stone, powder | 100 lb. | 3.00 | 4.00 |
| Rosins (600 lb. bbls. gross for net)— | | | |
| Grade B to H, basis 280 lbs. | bbl. | 6.25 | 7.45 |
| Grade K to N | bbl. | 7.50 | 7.80 |
| Grade WG and X | bbl. | 8.65 | 9.05 |
| Wood FF Spot | bbl. | 6.60 | 7.75 |
| Rotten Stone, pwd. bbls. | lb. | .02½ | .04½ |
| Silica | ton | 20.00 | 27.00 |
| Soap, Mottled | lb. | .04⅛ | .04⅜ |
| Olive Castile, bars | lb. | .26 | .35 |
| Olive Castile, powder | lb. | .28 | .38 |
| Powdered White, Neutral | lb. | .19½ | .21½ |
| Olive Oil Foot, bars, 68-70% | lb. | .09 | .09½ |
| Green, U. S. P. | lb. | .08 | .09½ |
| Tallow Chips, 88% | lb. | .08 | .08½ |
| Soda Ash, cont., wks., bags, bbls. | 100 lb. | 1.08 | 1.35 |
| Car lots, in bulk | 100 lb. | — | .90 |
| Soda Caustic, cont., wks., solid | 100 lb. | — | 2.30 |
| Flake | 100 lb. | — | 2.70 |
| Liquid, tanks | 100 lb. | — | 1.95 |
| Soda Sal., bbls. | 100 lb. | $1.10 | $1.30 |
| Sodium Chloride (Salt) | ton | 11.40 | 14.00 |
| Sodium Fluoride, bbls. | lb. | .07¼ | .08¾ |
| Sodium Hydrosulphite, bbls. | lb. | .19 | .20 |
| Sodium Silicate, 40 deg., drum | 100 lb. | .80 | 1.20 |
| Drums, 52 deg. wks. | 100 lb. | 1.40 | 1.80 |
| Tar Acid Oils, 15-25% | gal. | .22½ | .30½ |
| Triethanolamine | lb. | .20 | .25 |
| Trisodium Phosphate, bags, bbls. | lb. | .02½ | .03 |
| Zinc Oxide, lead free | lb. | .06 | .06¼ |
| Zinc Stearate, bbls | lb. | .20 | .22 |

## Oils — Fats — Greases

| | | | |
|---|---|---|---|
| Babassu, tanks, futures | lb. | .06⅞ | .07 |
| Castor, No. 1, bbls. | lb. | .09¾ | .10½ |
| No. 3, bbls. | lb. | .09¼ | .10 |
| Coconut (without excise tax) | | | |
| Manila, tanks, N. Y. | lb. | .04¼ | — |
| Tanks, Pacific coast, futures | lb. | .04 | — |
| Fatty Acids | lb. | .08 | .09 |
| Copra, bulk, coast | lb. | .0240 | .0245 |
| Corn, tanks, mills | lb. | .06¾ | .06⅞ |
| Fatty Acids | lb. | .07½ | .08½ |
| Cottonseed, crude, tanks, mill | lb. | — | .06¼ |
| PSY, futures | lb. | .07½ | .07¾ |
| Fatty Acids | lb. | .07¼ | .08¼ |
| Soap stock 60-62% | lb. | .02⅞ | .03⅛ |
| Soap stock 65% | lb. | .03⅞ | .04⅛ |
| Foots (50% basis) | lb. | .01⅜ | .01½ |
| Greases, choice white bbls., f.o.b. | | | |
| Chicago | lb. | .07½ | .07¾ |
| Yellow | lb. | .05⅜ | .05½ |
| House | lb. | .05⅜ | .05½ |
| Lard Oil, | | | |
| Extra, bbls. | lb. | — | .10½ |
| Extra, No. 1, bbls. | lb. | — | .09¼ |
| No. 2, bbls. | lb. | — | .08½ |
| Linseed, raw, bbls. | lb. | .1020 | .1030 |
| Tanks, raw | lb. | .0960 | .0970 |
| Boiled, 5 bbl. lots | lb. | .1140 | .1170 |
| Oleo Oil, No. 1, bbls., N. Y. | lb. | — | .09½ |
| No. 2, bbls., N. Y. | lb. | — | .09 |
| Olive, denatured, bbls., N. Y. | gal. | 1.10 | 1.15 |
| Foots, bbls., N. Y. | lb. | .09¼ | .09½ |
| Palm, shipment | lb. | .03⅞ | Nom. |
| Palm Kernel, shipment | lb. | .04¼ | Nom. |
| Red Oil, distilled, bbls. | lb. | .09⅝ | .10⅝ |
| Saponified, bbls. | lb. | .09⅝ | .10⅝ |
| Tanks | lb. | .08¾ | .09¾ |
| Sesame Oil, dms. | lb. | .10¼ | .10½ |
| Soya Bean, domestic tanks, crude | lb. | .06½ | .06¾ |
| Stearic Acid, | | | |
| Double pressed | lb. | .11 | .12 |
| Triple pressed, bgs. | lb. | .13¾ | .14¾ |
| Stearine, oleo, bbls. | lb. | .07¼ | .08 |
| Tallow, special, f.o.b. plant | lb. | .05¾ | .06 |
| City, ex. loose, f.o.b. plant | lb. | — | .06½ |
| Tallow oils, acidless, tanks, N. Y. | lb. | — | .09 |
| Bbls., c/1 N. Y. | lb. | — | .09½ |
| Teaseed Oil, crude | lb. | .08¾ | .09 |
| Whale, refined | lb. | .0940 | .0960 |

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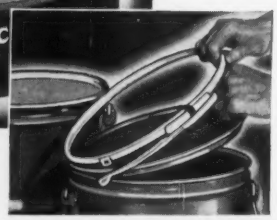

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## Essential Oils

| | | | |
|---|---|---|---|
| Almond, Bitter, U.S.P. | lb. | $2.50 | $2.75 |
| Bitter, F. F. P. A. | lb. | 2.25 | 2.50 |
| Sweet, cans | lb. | .63 | .65 |
| Anise, cans, U. S. P. | lb. | 1.10 | 1.15 |
| Bay tins | | 1.35 | 1.50 |
| Bergamot, coppers | lb. | 4.00 | 4.10 |
| Artificial | lb. | 1.25 | 1.40 |
| Birch Tar, rect. tins | lb. | .65 | .70 |
| Crude, tins | lb. | .14 | .17 |
| Bois de Rose, Brazilian | lb. | 1.55 | 1.60 |
| Cayenne | lb. | 1.50 | 1.75 |
| Cade, cans | lb. | .48 | .52 |
| Cajeput, native, tins | lb. | .66 | .72 |
| Calamus, tins | lb. | 5.50 | 5.75 |
| Camphor, Sassy, drums | lb. | .17 | .18 |
| White, drums | lb. | .17 | .18 |
| Cananga, native, tins | lb. | 1.50 | 1.65 |
| Rectified, tins | lb. | 2.15 | 2.75 |
| Caraway Seed | lb. | 2.20 | 2.25 |
| Cassia, Redistilled, U. S. P. | lb. | 1.20 | 1.25 |
| Cedar Leaf, tins | lb. | .85 | 1.10 |
| Cedar Wood, light, drums | lb. | .26 | .30 |
| Citronella, Java, drums | lb. | .45 | .48 |
| Citronella, Ceylon, drums | lb. | .38 | .40 |
| Clove, U. S. P., tins | lb. | 1.07 | 1.10 |
| Eucalyptus, Austl., U.S.P., cans | lb. | .44 | .46 |
| Fennel, U. S. P., tins | lb. | 1.20 | 1.30 |
| Geranium, African, cans | lb. | 4.00 | 4.75 |
| Bourbon, tins | lb. | 3.75 | 4.00 |
| Turkish | lb. | 2.40 | 2.60 |
| Hemlock, tins | lb. | 1.05 | 1.10 |
| Lavender, U.S.P., tins | lb. | 2.25 | 5.60 |
| Spike, Spanish, cans | lb. | 1.05 | 1.10 |
| Lemon, Ital., U. S. P. | lb. | 3.35 | 4.00 |
| Cal. | lb. | 2.50 | — |
| Lemongrass, native, cans | lb. | .42 | .43 |
| Linaloe, Mex., cases | lb. | 1.30 | 1.40 |
| Nutmeg, U. S. P., tins | lb. | 1.25 | 1.30 |
| Orange, Sweet, W. Ind., tins | lb. | 1.95 | 2.00 |
| Italian cop | lb. | 2.25 | 3.00 |
| Distilled | lb. | — | .90 |
| Cal. | lb. | 1.75 | — |
| Origanum, cans, tech | lb. | .90 | 1.25 |
| Palmarosa | lb. | 2.40 | 2.60 |
| Patchouli | lb. | 5.00 | 8.00 |
| Pennyroyal, dom. | lb. | 1.40 | 1.45 |
| Imported | lb. | 1.40 | 1.50 |
| Peppermint, nat., cans | lb. | 2.15 | 2.40 |
| Redis., U. S. P., cans | lb. | 2.35 | 2.60 |
| Petitgrain, S. A., tins | lb. | 1.10 | 1.20 |
| Pine Needle, Siberian | lb. | 1.02 | 1.05 |
| Rose, Natural | oz. | 5.25 | 22.50 |
| Artificial | oz. | 2.00 | 3.00 |
| Rosemary, Spanish, tins | lb. | .56 | .75 |
| drums | lb. | .51 | Nom. |
| Sandalwood, E. Ind., U.S.P. | lb. | 5.25 | 5.50 |
| Sassafras, U. S. P. | lb. | .90 | 1.05 |
| Artificial, drums | lb. | .34 | .35 |
| Spearmint, U. S. P. | lb. | 1.65 | 1.70 |
| Thyme, red, U. S. P. | lb. | .69 | 1.25 |
| White, U. S. P. | lb. | .78 | 1.35 |
| Vetivert, Bourbon | lb. | 8.00 | 18.00 |
| Ylang Ylang, Bourbon | lb. | 3.50 | 6.00 |

## Aromatic Chemicals

| | | | |
|---|---|---|---|
| Acetophenone, C. P. | lb. | $1.25 | $2.25 |
| Amyl Cinnamic Aldehyde | lb. | 2.00 | 2.25 |
| Anethol | lb. | 1.30 | 1.35 |
| Benzaldehyde, tech. | lb. | .60 | .65 |
| U. S. P. | lb. | 1.20 | 1.30 |
| Benzyl. Acetate | lb. | .55 | 1.00 |
| Alcohol | lb. | .63 | .68 |
| Citral | lb. | 1.60 | 3.15 |
| Citronellal | lb. | .75 | .80 |
| Citronellol | lb. | 1.90 | 2.15 |
| Citronellyl Acetate | lb. | 4.50 | 7.00 |
| Coumarin | lb. | 3.10 | 3.30 |
| Cymene, drums | gal. | .90 | 1.25 |
| Diphenyl oxide | lb. | .50 | .55 |
| Eucalyptol, U. S. P. | lb. | .58 | .60 |
| Eugenol, U. S. P. | lb. | 2.00 | 2.50 |
| Geraniol, Domestic | lb. | .75 | 2.00 |
| Imported | lb. | 2.00 | 3.00 |
| Geranyl Acetate | lb. | 2.00 | 2.50 |
| Heliotropin | lb. | 2.00 | 2.10 |
| Hydroxycitronellal | lb. | 3.50 | 9.00 |
| Indol, C. P. | oz. | 2.00 | 2.50 |
| Ionone | lb. | 3.25 | 5.50 |
| Iso-Eugenol | lb. | 3.00 | 4.25 |
| Linalool | lb. | 1.65 | 2.25 |
| Linalyl Acetate | lb. | 1.70 | 2.55 |
| Menthol | lb. | 3.15 | 3.25 |
| Methyl Acetophenone | lb. | 2.50 | 3.00 |
| Anthranilate | lb. | 2.10 | 2.75 |
| Paracresol | lb. | 4.50 | 6.00 |
| Salicylate, U. S. P. | lb. | .40 | .45 |
| Musk Ambrette | lb. | 4.20 | 5.00 |
| Ketone | lb. | 4.35 | 5.25 |
| Xylene | lb. | 1.25 | 2.00 |
| Phenylacetaldehyde | lb. | 4.80 | 8.00 |
| Phenylacetic Acid, 1 lb. bot. | lb. | 1.85 | 3.25 |
| Phenylethyl Alcohol, 1 lb. bot. | lb. | 4.00 | 4.50 |
| Rhodinol | lb. | 5.75 | 8.00 |
| Safrol | lb. | .47 | .50 |
| Terpineol, C. P., 1,000 lb. drs. | lb. | .23 | .25 |
| Cans | lb. | .27 | .30 |
| Terpinyl Acetate, 25 lb. cans | lb. | .77 | 1.00 |
| Thymol, U. S. P. | lb. | 1.70 | 1.95 |
| Vanillin, U. S. P. | lb. | 3.10 | 3.80 |
| Yara Yara | lb. | 1.30 | 2.00 |

## Insecticide Materials

| | | | |
|---|---|---|---|
| Insect Powder, bbls. | lb. | .23 | .25 |
| Concentrated Extract | | | |
| 5 to 1 | gal. | 1.50 | 1.60 |
| 20 to 1 | gal. | 5.50 | 5.60 |
| 30 to 1 | gal. | 8.00 | 8.25 |
| Derris, powder—4% | lb. | .33 | .38 |
| Derris, powder—5% | lb. | .39 | .44 |
| Cube, powder—4% | lb. | .23½ | .28½ |
| Cube, powder—5% | lb. | .28 | .33 |

## Gums

| | | | |
|---|---|---|---|
| Arabic, Amb. Sts. | lb. | .11 | .11¼ |
| White, powdered | lb. | .14 | .15 |
| Karaya, powdered No. 1 | lb. | .12 | .13 |
| Tragacanth, Aleppo, No. 1 | lb. | 2.75 | 3.00 |
| Flake | lb. | .50 | 1.00 |

## Waxes

| | | | |
|---|---|---|---|
| Bees, white | lb. | .39 | .45 |
| African, bgs. | lb. | .25 | .25½ |
| Refined, yel. | lb. | .35 | .39 |
| Candelilla, bgs. | lb. | .13½ | .14 |
| Carnauba, No. 1 | lb. | .41 | .43 |
| No. 2, N. C. | lb. | .39 | .40 |
| No. 3, chalky | lb. | .33½ | .34 |
| Ceresin, yellow | lb. | .08½ | .11½ |
| Paraffin ref. 125-130 | lb. | .0445 | .05 |

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A blend of refined fatty acids, with the following specifications:

AVERAGE QUALITY OF INDUSOIL

| | |
|---|---|
| Specific Gravity 60°/60°F. | 0.96-0.98 |
| Pour Point | 47° F.-52° F. |
| Viscosity (Saybolt) | |
| @ 100° F. | 700-900 Sec. |
| @ 210° F. | 70-80 Sec. |
| Flash Point | 350-380° F. |
| Fire Point | 410-430° F. |
| Sediment | None |
| Moisture | Practically None |
| Ash | Practically None |
| Completely Soluble in Petroleum Ether | |
| Acid No. | 150-170 |
| Saponification Value | 150-170 |
| Color (Rosin Scale) | G-I |
| Fatty Acid | 43-47% |
| Rosin Acids | 38-42% |
| Sterols | 13-17% |

### ABIETIC ACID

A distilled product, excellent in color and meeting the following requirements:

| | |
|---|---|
| Acid No. | 176-185 |
| Saponification No. | 176-185 |
| Iodine No. | 150 to 170 |
| Color (Rosin Scale) | N (Opaque) |
| Melting Point | 230° F. to 250° F. |

### LIQRO

A blend of crude pine fatty acids, with the following specifications:

| | |
|---|---|
| Acid No. | 150 to 160 |
| Rosin Acids | 40 to 50% |
| Fatty Acids | 35 to 45% |
| Sterols | 15 to 20% |

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Production Section

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

# Notes on Shaving Soaps

IN the manufacture of high quality shaving soaps, the "best of materials are scarcely good enough." In the past, shaving soaps have been prepared largely from neutral oils, with the exception of stearic acid. Today it is possible to use other fatty acids, since these are available in much lighter color and purer state than formerly. Other fatty ingredients used are coconut oil, premier jus, tallow, palm oil, lard and castor oil.

Shaving soap should meet the following requirements:

1. Pure white color.
2. Ready and stable lather.
3. Soft enough to be readily picked up on a brush.
4. Complete saponification.
5. Freedom from skin irritation.
6. Should be superfatted.

Some authorities give a maximum value for excess alkali of 0.03 per cent, while others limit it to 0.01 to 0.015 per cent. Some neutralize the soap and then add excess stearic acid. This should not be carried too far as some skins may be sensitive to even this acidity. Addition of as much as 2 to 3 per cent excess stearic acid sometimes causes a coating to form on the surface, and this layer is more acid than the rest of the soap.

The important function of shaving soap is the softening action on keratin, the principal constituent of hair. This softening action is held to be dependent on the content of potassium soap, which also increases lather. Glycerine may be added to increase softening action. Some have recommended up to 20 per cent of glycerine, but this figure is too high because of the adverse effect on lathering power. Triethanolamine has a softening and swelling effect on hair without injuring the skin in any way. Because of its high price, triethanolamine is seldom used alone but may be combined, as in the following mixture:

1 part tylose, SAP 25 (a methyl cellulose product)
2 parts triethanolamine, distilled
7 parts water

Such a mixture may be used to replace glycerine for the purpose mentioned. Boiling water is poured over the tylose and triethanolamine, the mixture is stirred well and allowed to stand overnight. It is stirred again the next day. A homogeneous pasty mass results. Glycol and diethylene glycol are suitable as substitutes for glycerine but again their price is high. When they are used, it is in small amounts and in combination with some other hair-softening agent.

Lamepon PhA is a very good addition to shaving soap. It makes the lather thicker and prevents its too rapid drying on the face. For solid shaving soaps, the amount to use is 3 to 5 per cent. Lamepons are compatible with all other additions, such as the glycerine substitutes mentioned. They also tend to make the soap milder, another point in their favor.

The use of sodium metaphosphate in minute amounts is noted. It has a water-softening effect so that the soap is more efficient, and increases the lather. About 0.5 per cent is a suitable amount.

In making shaving soaps, the total fat stock should always be melted first and then filtered through cloth. This is of special advantage with stearic acid since in spite of its pure white color, it will sometimes be found after melting that a small amount of dirt was occluded. Such pretreatment of the fat is of special importance if the soap is to be made by the semiboiled method. Saponification is usually carried out with a mixture of potash and soda lye. Partial saponification with ammonia is also used. The proportions of potash to soda lye varies; usually being 1:1 or 2:1, a ratio of 1.5:1 of potash to soda can be recommended. The lye should be brought to the proper concentration and then allowed to stand at least overnight for dirt and insoluble material to settle out. It should then be purified by filtering through glass wool or asbestos, in order to obtain a completely clear solution. This small amount of additional work is well worth while.

The method most used is the semiboiled process. If stearic acid or other fatty acids are used, the saponification as well as the melting of the fatty ingredients should take place in aluminum or in an enamelled vessel. The acids will attack iron and acquire

a dark color. Wooden vessels with copper coils can also be used. A general formula is as follows:

| | Parts |
|---|---|
| Beef tallow | 12.5 |
| Stearic acid | 17.5 |
| Coconut oil | 10 |
| Caustic potash, 38° Be. | 10 |
| Caustic soda, 38° Be. | 10 |
| Glycerine or substitute | 2 |

The purified fats or fatty acids are brought to 75° C. (167° F.) in a suitable vessel. The lye mixture is brought to boiling in a separate vessel. The fat is then stirred into the hot lye in portions. Saponification begins immediately and may be very rapid, especially with fatty acids. When one portion of fat is saponified, another is introduced into the lye kettle, etc., until all of the fat has been added. Stirring is continued for a time, after which the kettle is covered and allowed to stand. After about a quarter of an hour, it is uncovered, the soap is well mixed and a sample removed for titration for free alkali. If the free alkali is too great, hot stearic acid is added. Care should be taken to prevent the latter from lumping. Glycerine can be added at this time or during crutching.

The soap is next run into small forms to set and left at least two weeks. The higher the potassium-soap content, the longer must it stand. If shaving soap is milled, the rollers should not be too close together or the temperature may be raised sufficiently in the soap to make it somewhat transparent instead of an opaque white. Before milling, the soap is superfatted in a mixing machine. A good mixture with neutralizing action is as follows:

| | Parts |
|---|---|
| Casein | 10. |
| Water, cold | 27.4 |
| Water, hot | 10. |
| Borax | 1.35 |
| Boric acid | 1.25 |
| Stearic acid | 15. |
| Lanolin | 15. |

Up to 4 per cent of this paste may be used. Titanium oxide may also be added during the milling process to give the product a fine white color. Perfume is added in the mixing machine.

Some firms have been packaging shaving soap in small wooden containers which are very attractive in appearance. Analysis of the wooden bowl product of Yardley showed:

| | Per Cent |
|---|---|
| Fatty acid | 73.3 |
| Free alkali | 0.00 |
| Sodium chloride | 0.12 |

Titanium oxide could not be detected. In order to pack soap in wooden containers of this kind, it is necessary that it be poured into the containers directly from the soap kettle. Since this concentration of fatty acids could not be attained by such a process, using ordinary lye concentrations, saponification must be accomplished in part with solid alkali. In this way, the semiboiled process can be used. The fats are melted in one vessel, the liquid lye heated in the saponification kettle, and powdered alkali added to the liquid lye. After the lye has been heated to 90° C. (194° F.), successive portions of fat are added with mixing. After saponification, the alkalinity is determined and the mixture neutralized. Superfatting agents and perfume are added. After mixing, the finished product is run into the small containers, and when cold, the soap is pressed, polished and stamped. Rudolf Klein. *Deutsche Perfumerie-Ztg.* **23,** 415-6, 439 (1937).

## Rosin in Soap

A comparison of the Wolff method and the McNicoll method for the determination of rosin in soap shows that results by the two methods agree well, but the latter is more rapid and convenient to use. It is recommended with a deduction of 1 per cent from the actual results obtained.

*Method.* Separate the total fatty matter from about 5 grams of soap sample by dissolving in hot water, acidifying with dilute sulfuric acid, cooling and washing the cake of fatty matter with water, until the aqueous washings are free from acidity. The fatty matter may also be obtained by extraction with ether from acid solution. Weigh about 2 grams of the total fatty matter into a 150 cc. flask, dissolve it in 20 cc. of a solution containing 40 grams of naphthalene-2-sulfonic acid in 1 liter of pure dry methyl alcohol. Boil gently under a reflux condenser for 30 minutes, adding marble chips to aid boiling. Carry out a blank test at the same time with 20 cc. of reagent alone. Cool the contents of both flasks and titrate with $N/5$ alcoholic potassium hydroxide solution to a phenolphthalein end point. The difference between the two titrations is a measure of the resin acids. One cc. of $N/5$ alcoholic potassium hydroxide solution is equivalent to 0.0652 gram of resin acids. Calculate the resin acids as a percentage of the total fatty matter and subtract 1 per cent from the figure obtained.

With less than 5 per cent of rosin the results will not be as accurate as with larger amounts. The quantitative method is liable to give erroneous results with certain types of carbolic soaps containing high-boiling tar acids. For the purpose of calculating the approximate proportion of rosin in the soap it may be assumed that rosin contains 92 per cent of resin acids. H. E. Cox and Norman Evers. *Analyst* **62,** 869-70 (1937).

## Hard-water Cleansers

An addition is made to silicated cleansers to prevent the precipitation of alkaline earth silicates in hard water. Such an agent consists of an amino acid or salt of amino acid containing three carboxylic groups in a similar position per atom of nitrogen. This agent is introduced in such amounts as to retain the lime and other salts in a dissolved condition. The sodium salt of trimethyl amine-$a$, $a^1$, $a^{11}$-tricarboxylic acid is particularly suitable for the purpose. As an example, an addition of 4 to 5 per cent of the salt named is added to crystalline sodium metasilicate. When this product is dissolved in the proportion of 1:100 in water with 10° of hardness, the usual flocculation of silicates is no longer observable. Lime deposits such as those from milk, can be rinsed out of vessels containing them with an aqueous solution of the above mixture. I. G. Farbenindustrie A.-G. British Patent No. 474.518.

# Products and Processes

## Germicidal Dish Detergents

Experiments were made to determine the efficiency of various types of detergents in removing bacteria during the washing of dishes in a regular machine for the purpose. The cleaners examined, used in conjunction with soap, were: (A) a trisodium phosphate detergent; (B) a dishwashing compound containing sodium pyrophosphate and sodium metasilicate; and (C) a metaphosphate cleaner. Results showed detergent C to be most efficient in leaving the dishes free from bacteria, either when used alone or in conjunction with a sodium hypochlorite rinse. The efficacy of detergent C in this respect is attributed to its power of preventing the formation of a film of calcium and magnesium soap on the dishes, which would entrap bacteria. The favorable results with detergent C were particularly outstanding when the dishes were scraped with a sterile inoculating needle in order to break up the film formed by insoluble matter. The results with detergent C without the added use of hypochlorite appear to be good enough to justify its use in place of detergents of the type of A or B plus a chlorine disinfectant. George O. Hall and Charles Schwartz. *Ind. Eng. Chem.* **30,** 23-6 (1938).

## Shampoo Jelly

A soap jelly of a consistency suitable for packing in collapsible tubes may be prepared with the aid of triethanolamine. A small portion of this can be squeezed out and used for a complete shampoo because of its concentrated nature. To prepare such a shampoo product, saponify 10 parts of coconut oil fatty acids, 5 parts of distilled olein and 5 parts of peanut or lard fatty acids, with a mixture of 15 parts of potash lye and 3 parts of triethanolamine. After saponification, excess alkalinity is corrected by the addition of Turkey red oil until the reaction is only faintly alkaline. A few parts of alcohol are added to aid transparency and as a carrier for the perfume. Just sufficient water is added so that the soap will gelatinize when cooled. *Seifensieder-Ztg.* **64,** 905 (1937).

## Hard-Water Resistant Agents

Wetting agents having soluble calcium and magnesium salts and remarkable resistance to acid are prepared by esterifying aliphatic sulfodicarboxylic acids. An example is esterification of sulfomaleic acid with methyl alcohol until a conversion of 95 per cent or more is obtained. The mixture is then neutralized with caustic soda and the excess alcohol recovered by distillation. When evaporated to dryness, a white rubbery product having no definite melting point and showing a very great solubility in water, is formed. It is the sodium salt of dimethyl sulfomaleate. H. W. Rose. *Am. Dyestuff Reporter* **26,** 825-7 (1937); U. S. Patent No. 2,028,091).

## Hydrocarbon Soaps

Soaps free from unsaponifiable matter can be obtained from mixtures containing fatty acids by saponifying the mixture with alkali, distilling off part of the unsaponifiable constituents, and removing the rest by dissolving them in organic solvents. Starting materials may be the oxidation products of paraffin hydrocarbons, such as hard paraffin wax, middle oils, etc. The distillation to remove unsaponifiable matter, after saponification has been effected, is preferably carried out at reduced pressure. The remaining soap melt is cooled and then converted into chips on cooling rollers. The soap is then stirred with a solvent such as benzine, cyclohexane or acetone. The soap is dissolved only slightly, while its color and odor are improved. The treatment is very simple and requires considerably smaller amounts of solvent than the extraction of aqueous soap solutions. The unsaponifiable constituents extracted from the soap are separated from the solvent by evaporating the latter. I. G. Farbenindustrie A.-G. British Patent No. 474,476.

## Scouring Powder

A scouring powder is made from 63 parts of finely ground pumice, marble powder or Neuberger chalk, 7 parts of powdered soap, 15 parts of calcined soda, 10 parts of trisodium phosphate and 5 parts of sodium metaphosphate. All of the ingredients must be ground to the same degree of fineness as an aid in the prevention of settling. *Seifensieder-Ztg.* **64,** 886 (1937).

## Cotton Oil Textile Soap

A neutral soap was made by the cold process from 2 parts of cottonseed oil and 1 part of 28 per cent caustic soda solution. The product resembled white floating soap in appearance but was difficultly soluble in both cold and hot water. An easily soluble soap was made by incomplete saponification, containing 65.3 per cent of fatty acids. For this 475 parts by weight of cottonseed oil, 12 parts of cottonseed oil-fatty acids, and 220 parts of caustic soda solution (d. 1.270) were used. The quantity of lye was 80 per cent of the theoretical amount. The soap was used in finishing processes. The diluted soap solution showed no separation of oil in 10 days. The unsaponified fraction could not be separated by the usual methods. The soap was also suitable for use in emulsion in turpentine oil Baumwoll-Ind. (russ.) **7,** 28-9 (1937); through *Fette und Seifen* **44,** 492.

## New Saponification Method

Anhydrous soap and glycerine are produced in a special reaction chamber through which superheated steam is continuously passed, by spraying an unsaponified mixture of fat or oil and a solution of caustic alkali into contact with the superheated steam. Henry W. F. Lorenz and Frederick W. Brown. U. S. Patent No. 2,096,188.

## Exhibit Detergent Tests

A demonstration of the latest detergent testing apparatus, was a feature of the exhibition of scientific instruments sponsored by the Physical Society, London, England, last month. An exhibit which attracted interest was an apparatus for investigating the penetration of fabrics by detergent solutions. It consisted of two detachable reservoirs containing a washing liquid, either a soap or one of the new sulfated alcohols, and a two-section electrode department. In operation, a standard fabric membrane is clamped between the reservoirs and the apparatus is then inverted so that the solution comes into contact with the two sides of the fabric. The electrodes are connected to an electrical circuit consisting of a mains-driven 1000 C.P.S. oscillator, a copper oxide rectifier and a galvanometer. The resistance between the electrodes is measured and decreases continuously as the fabric membrane wets out. From a knowledge of the resistance corresponding to complete saturation, it is possible to calculate the degree of penetration after any time interval.

## Formula for Transparent Soap

A formula for transparent soap from fatty acids is as follows:

| | *Parts* |
|---|---|
| Tallow fatty acids | 10 |
| Coconut oil fatty acids | 10 |
| Castor oil fatty acids | 5 |
| Caustic soda solution, 38°Be. | 132 |
| Sugar | 75 |
| Water | 92 |
| Denatured alcohol | 25 |

*Seifensieder-Ztg.* 64, 787 (1937).

## Carpet Soaps

Published formulas for rug and carpet soaps frequently include too high a proportion of soda ash, the latter tending in certain instances to react with acid dyestuffs present in the carpet or rug undergoing treatment, according to a recent article in *Soap Perfumery and Cosmetics.* Carpet soaps should be midway between dry cleaning and ordinary hard soaps, for preference. Useful solvents include isopropyl alcohol, cyclohexanol, methyl cyclo-hexanol, octyl alcohol, "Butyl Cellosolve," etc. The following formula gives a satisfactory *liquid* product (W. H. Dicken, M.Sc., *Soap, Perfumery and Cosmetics,* June, 1937):

| | |
|---|---|
| Oleic acid | 28 |
| Butyl Cellosolve | 5 |
| Ethylene dichloride | 13 |
| Triethanolamine | 16 |
| Water | 125 |
| Isopropyl alcohol | 14 |

The oleic acid, ethylene dichloride, and "Butyl Cellsolve" are mixed and then added to a solution made of the triethanolamine and water; the mixture is well stirred and sufficient isopropyl alcohol is added to form a clear solution, yielding a product readily emulsifiable in water.

Solid cyclohexanol soaps may be made by adding from 5 to 10 per cent of cyclohexanol to a full-boiled hard soap base. Other useful additives are a proportion of triethanolamine stearate, sulfonated fatty alcohol products, "Pentabor" and sodium perborate. Insoluble fillers should also be incorporated, such as fuller's earth, Cornish china clay, bentonite, prepared chalk, talc, magnesium carbonate or a mixture of two or more of these.

Ox gall was formerly recommended as a constituent of carpet cleaning and stain removing soaps, in proportions varying from 10 to 18 per cent. A much more pleasant modern alternative would probably be sodium cholate.

A satisfactory solid carpet soap may therefore be composed of hard soap, solvent, insoluble filling materials, and preferably a proportion of sodium cholate, sulfonated fatty alcohols, or products of a similar character.

## Sulfate Ester Detergent

A detergent composition consists of a solution of water-soluble sulfate ester of a saturated secondary branched-chain alcohol containing at least 8 carbon atoms. Two branched-chain alkyl groups are connected directly to the carbon atom to which the sulfuric group is attached. Carbide & Carbon Chemicals Ltd. Canadian Patent No. 370,645.

## Rosin Saponification Number

The saponification number of rosin is influenced by the solvent used in the determination, alcohols of the higher molecular weights giving the higher values. This is in harmony with the findings of earlier investigators on the saponification of oils, fats and waxes. Since known esters of abietic acid are not completely saponified in *n*-butyl alcohol and it is generally assumed that rosin contains esters of the resin acids, it is probable that rosin is not completely saponified even in this medium, although the results obtained are higher than with the other solvents tested.

Attempts to determine the saponification number of rosin by saponifying in aqueous alkali have not met with complete success. However, results obtained by this method also indicate that saponification is not complete. W. C. Smith. *Ind. Eng. Chem.*, Anal. Ed. **9**, 469-71 (1937).

## Free Fat in Soap

In the usual determination of free fat in soaps, the method of dissolving a sample in alcohol results in catalytic saponification of the free fat by the contaminating free alkali. The recommended procedure consists in dissolving a sample in water containing a little sodium sulfate, (up to 0.1 gram), followed by alternate extraction and shaking with ether, washing with water, evaporation of the ether and drying and weighing the residue as usual. I. E. Solovin. *Masloboino Zhirovoe Delo* **13,** No. 3, 33 (1937).

## Refractometric Determinations

As a result of an investigation of 84 samples of flaxseed oil and of collaborative tests on 10 samples, it is concluded that Coelman and Fellows' refractometric method for determining the oil content of flaxseed is fully as reliable and accurate as the petroleum ether method, and takes 20-30 minutes as compared with 16-24 hours for the latter. Lawrence Zeleny. *J. Assoc. Official Agr. Chem.* **20,** 421-7 (1937).

### Glycol Derivatives

Ethylene glycol monobutyl ether may be used as a component of dry-cleaning soaps to increase their solubility in naphtha and to permit the incorporation of small amounts of water. The presence of water is necessary for removing water-soluble stains from the articles to be cleaned. The compound is a colorless liquid of mild odor boiling at 163-174°C., and having a specific gravity of 0.9188. Diethylene glycol monoethyl ether is a mutual solvent for mixtures of mineral oil and soap, as well as of mineral oil and sulfonated oil. It therefore corrects immiscibility and produces a transparency, in contrast to the usual milky-white emulsions. The compound is a colorless, slightly hydroscopic liquid possessing a mild pleasant odor. Ralph G. Harry. *Manufacturing Chemist* **8,** 356-7 (1937).

### Dichromate-glycerine Titration

For control purposes in soap and glycerine manufacture, glycerine is usually determined by the oxidation of a prepared sample with an excess of potassium dichromate in the presence of excess sulfuric acid. Excess dichromate is titrated with ferrous sulfate solution. An electrometric titration can be made using ferrous sulfate and the oxidation flask without any transfer. Details of the apparatus and method are described. Chemical Division. The Procter & Gamble Co. *Ind. Eng. Chem.*, Anal. Ed. **9,** 514-5 (1937).

### German Grapeseed Oil

The seeds from (1) white grapes (Riesling variety), (2) red grapes (Trollinger variety) and (3) Argentine white grapes (Ave Maria variety) were ground and extracted. The oil yields were 14.2, 14.8 and 18.2 per cent respectively. Grape seeds soaked for 3 months in acetone showed no decrease in fat content. This was due to the impenetrability of the sclerenchymatic layer. For the same reason, the grape marc can become very moldy without affecting the yield or quality of the oil from the grape seeds. Oleic, linoleic and saturated acids were detected in grapeseed oil. If the absence of unknown acids is assumed, the approximate composition of the fatty acids of grapeseed oil is: Saturated acids 11.9, linoleic acid 71.4 and oleic acid 16.7 per cent. Germany's possible annual production of grapeseed oil could scarcely exceed 1500 tons. H. P. Kaufmann and H. Fielder. *Fette und Seifen* **44.** 286-9 (1937).

### Dry-cleaning Solvents

Bulky silk lamp shades, leather gloves, metal objects etc. are cleaned with a volatile organic solvent, preferably in the cold, in one or more vessels by dipping, spraying, brushing etc., and are then placed in or above a separate open vessel and dried while the solvent vapors are withdrawn from the lower part of the vessel. When a heated solvent is used, a cooling device is provided for condensing the hot vapors. Alexander Wacker Gesellschaft für elektrochemische Industrie G.m.b.H. British Patent No. 466,443.

### Shaving Powder

Powdered shaving soap may be made according to the following formula: 55 parts stearic acid, 5 parts coconut oil fatty acids, 20 parts caustic potash, 40°Be., and 13 of caustic soda, 40°Be. The soap should contain 1-2 per cent of free stearic acid. It is well dried and ground, then mixed with 10 per cent of corn, rice or potato starch and 1 per cent of boric acid. It should be well packed to prevent absorption of moisture. *Seifensieder-Ztg.* **64,** 966 (1937).

### Composition of Wool Fat

Saponification of wool fat shows that it contains 62.7 per cent of fatty acids, 32.8 per cent of unsaponifiable matter and 1.1 per cent of matter insoluble in ether. Fractionation of the fatty acids gave cerotic acid and lanoceric acid. The unsaponifiable fraction contains ceryl alcohol, isocholesterol and cholesterol. A. Heiduschka and E. Nier. *J. prakt. Chem.* **149,** 98-106 (1937); through Chem. Abs.

### Tallol in Paste Soap

Tall oil (tallol) may be used in making translucent paste soaps. The amount is limited, however, by its content of resin acids which are about 40 per cent of the oil. Too much tall oil will tend to make the soap fluid. A suitable amount is 20 to 25 per cent of tall oil in the fat stock. Distilled tall oil contains 2-4 per cent of unsaponifiable matter but this will not interfere seriously in making translucent soap. *Seifensieder-Ztg.* **64,** 867 (1937).

### Lime Soap in Wool

The problem of lime soap formation is peculiar in wool scouring operations. The softening of the water supply is not a complete solution, as with other scouring operations, because certain qualities of wool contain lime. In the case of skin wool removed from the pelt by the "slipe" process, as much as 6 to 8 per cent of lime is found. Additions of soda ash at the first bowl are helpful, as it is mainly calcium hydroxide which is present, but the soundest solution is the addition of sodium metaphosphate to the last rinse bowl. Large-scale practice has established its efficacy in clearing the wool of objectionable lime soap deposits. The cost of the addition is somewhat offset by rendering softening of the water unnecessary. Wm. Huggan. *Soap, Perfumery & Cosmetics* **10,** 1039 (1937).

### Impregnated Cleaning Cloths

A liquid composition suitable for impregnating cloths for cleaning and polishing contains 0.5 per cent of linseed oil, 0.5 of turpentine, 1 of vinegar, 3 of paraffin oil and 95 per cent of water. Lowell C. Allen and Bryan B. Doughty. U. S. Patent No. 2,098,607.

### Borate Water Softener

Sodium borate is crystallized from solution with water of hydration, in which the ratio of $Na_2O$ to $B_2O_3$ is substantially 3:8. The product is a detergent and water softener. Henry B. Suhr. U. S. Patent No. 2,096,266.

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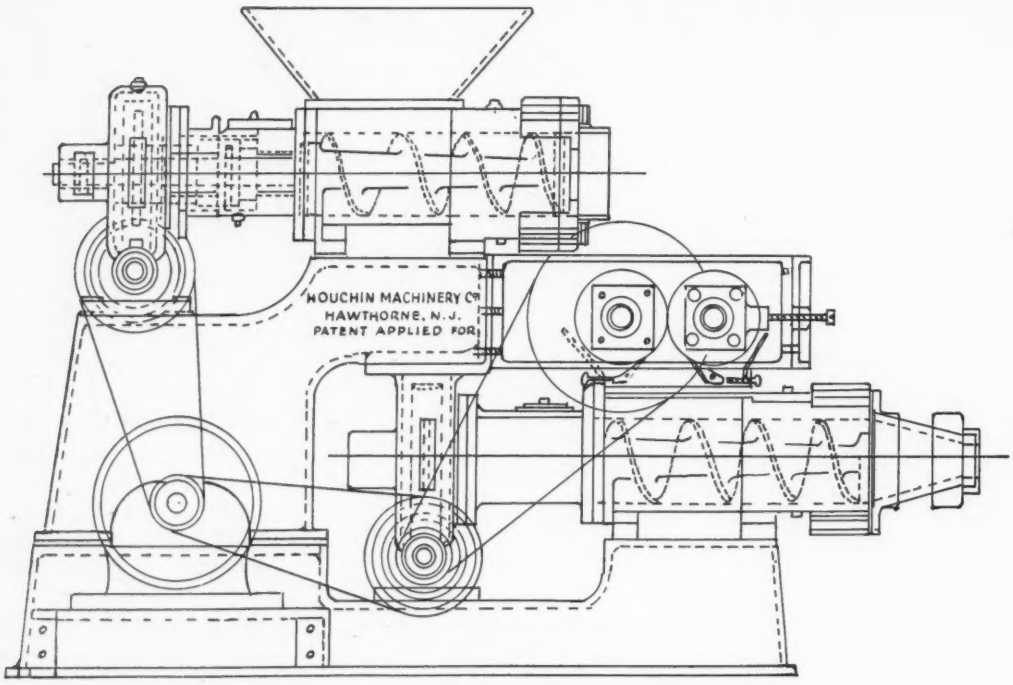


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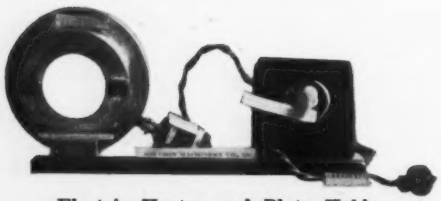

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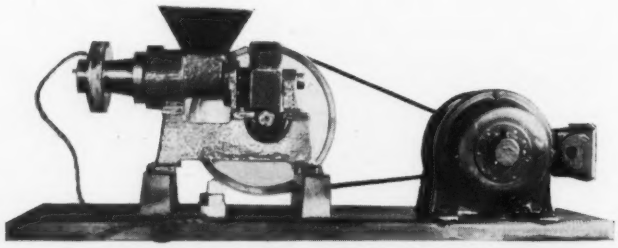

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**No. 2,101,050**, Polishing Compound, Patented December 7, 1937 by Harry J. Hosking, Sea Cliff, N. Y. A composition of matter comprising a mixture of water, glue, glycerine, borax and alundum and the products of their combinations.

**No. 2,101,373**, Spray Compound, Patented December 7, 1937 by Frank F. Lindstaedt, Oakland, Calif. A horticultural spray compound, comprising a mixture of hydrocarbon oil and tung oil in a proportion effective to retard penetration of the hydrocarbon oil into the pores of plants and the like when the mixture is deposited on the surface thereof.

**No. 2,101,587**, Insecticidal Product, Patented December 7, 1937 by Arthur A. Levine and Robert W. McAllister, Niagara Falls, N. Y., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. An insecticide comprising cyclohexene oxide.

**No. 2,101,645**, Insecticide, Patented December 7, 1937 by Robert A. Fulton and Willis Conrad Fernelius, Columbus, Ohio, dedicated to the free use of the Public in the Territory of the United States of America. A material for use in combatting economically harmful plant and animal organisms, containing sulfur nitride as its essential active ingredient.

**No. 2,101,704**, Insecticide Composition, Patented December 7, 1937 by Charles Dangelmajer, Niagara Falls, N. Y., assignor to The E. I. du Pont de Nemours & Company, Wilmington, Del. A process for preparing a solid cuprous cyanide composition which is readily suspended in water to form an agricultural spray liquid which comprises precipitating cuprous cyanide in the presence of a finely divided, substantially insoluble, solid material which is substantially chemically inert to the other substances present and mixing the moist precipitate with a protective colloid.

**No. 2,102,101**, Fat and Oil Splitting Enzyme, Patented December 14, 1937 by Etsuo Takamiya, Moji, Japan. The process of preparing fat and oil splitting enzyme material which comprises, adjusting the oil content of seed material which contain the enzyme to a minimum of 5% of their weight and subjecting the oil adjusted material to the action of from 40 to 5% of their weight of a 0.6 to 1.2 normal solution of an acid, and separating the enzyme material from the resulting mixture of oil and acid.

**No. 2,102,219**, Water Softening Compound, Patented December 14, 1937 by Sidney A. Raymond, Green Bay, Wis. The improved water softening compound consisting of trisodium aluminate, borax and an alum.

**No. 2,102,564**, Insecticides, Patented December 14, 1937 by Robert J. Bronstein, Scranton, Pa. An insecticide and fungicide comprising a water-dispersible condensation product of an inorganic salt, selected from the group consisting of inorganic sulfides and inorganic selenides, with an organic halogen compound selected from the group consisting of aliphatic carbon compounds containing two halogen atoms on adjacent carbon atoms, and aliphatic carbon compounds containing a halogen atom and a hydroxyl group on adjacent carbon atoms.

**No. 2,102,849**, Soap Beads, Patented December 21, 1937 by Vaman R. Kokatnur, New York, N. Y., assignor to Autoxygen Inc., New York, N. Y. A method of producing soap beads or the like, which includes the step of dropping a normally solid or gelled soapy substance in molten condition into a bath of non-aqueous organic volatile cooling liquid to effect rapid cooling and case hardening of the drops into the form of beads or the like.

**No. 2,103,193**, Recovery of the Unsaponifiable Fractions of Oils, Patented December 21, 1937 by Robert Preston Nichols, Miami, Fla., assignor to Edward L. Nichols, Hollywood, Fla. The process of recovering the unsaponifiable fractions of fish liver oil which comprises adding to and immediately mixing with the oil dry powdered sodium hydroxide, the latter being added to the oil substantially as a mass in large excess over that necessary to saponify the saponifiable fractions of the oil, so as to absorb moisture for protecting the vitamins and cause to be quickly formed a solidified mixture of soap and sodium hydroxide of requisite hardness to be reduced to a powder by a grinding operation; operating upon the solidified mixture to grind it to a powder; treating the resulting powder with a volatile liquid in which both the unsaponifiable and saponifiable fractions of the oil are soluble, but in which both the soap and sodium hydroxide are insoluble, for dissolving the unsaponified fractions of the oil from the powder; separating the powder from the resulting solution of the unsaponified fractions of the oil; and treating the powder free solution for vaporizing the volatile liquid solvent therefrom to obtain a concentration of the unsaponifiable fractions of the oil.

**No. 2,103,195**, Insecticide, Patented December 21, 1937 by Howard A. Jones, Washington, D. C., decicated to the free use of the People of the United States of America. A new chemical compound composed of a monomolecular combination of retenone and dichloracetic acid.

**No. 2,103,196**, Insecticidal Oil Spray, Patented December 21, 1937 by Hugh Knight, Claremont, Calif., assignor to Emulsoids, Inc., San Francisco, Calif. A tree spray composition comprising about 95% to 99% of paraffinic mineral oil, about .1% to 2.0% of toxic naphthenic acid, and about .5% to 4.5% oil soluble emulsifier.

**No. 2,103,657**, Organic Mercury Compounds, Patented December 28, 1937 by Carl N. Anderson, Wellesley Hills, Mass., assignor to Lever Brothers Company. A new organic mercury compound having the general formula $(RHg)\ x.R_1$, in which R represents an aromatic structure to a carbon atom of which the mercury is directly attached, and in which none of the carbon atoms has direct linkage with any element other than hydrogen, carbon and mercury; in which $R_1$ represents a halogen nuclear substituted aromatic acid radical which is linked to the RHg group through the replacement of an acidic hydrogen atom and in which x represents the number of RHg groups in the compound and is an integer representing the number of acidic hydrogen atoms in the acid.

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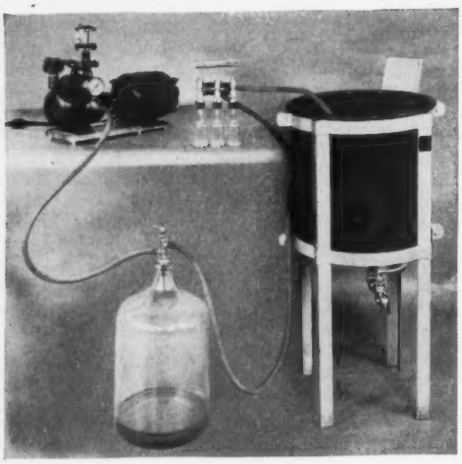

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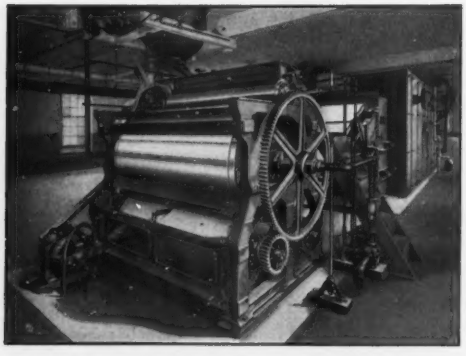

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# New Equipment

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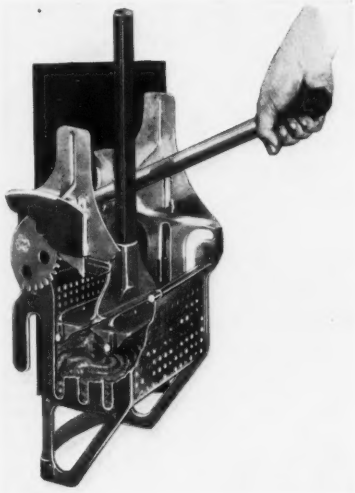
### 435—New Mop-Wringer

Geerpres Wringer, Inc., Muskegon, Mich., has recently introduced a new mop-wringer for industrial and



business use, designed to squeeze rather than wring mops. Its use is said to prolong the life of a mop. In operation, the mop is inserted in a container, a handle is pulled down and then released, and the dry mop removed. When the handle is pulled down, two plates fold down from the top of the mop container, sealing the mop in. As the movement of the handle is continued, the plates, through a sector gear and rack operation, press downward in the perforated container squeezing the mop dry. The wringer is said to exert uniform pressure regardless of the size of the mop used. The squeezing action is downward into the pail, which prevents splashing.

### 437—Pulverizer Catalog

Pulverizing Machinery Co., Roselle Park, N. J., has just issued a 32-page catalog describing the application of the "Mikro" pulverizer in industry. It contains photographs of pulverizing operations in various industries using the "Mikro", together with tables of capacities and power consumption figures. Copies available on request.

# Publications

### 439—Viking House Organ

Viking Pump Co., Cedar Falls, Ia., has just issued the January number of its quarterly house magazine, *The Viking Vacuum*. The issue contains a number of articles of interest to the general reader as well as to the user of Viking pumps.

### 440—Dicalite Catalog

Dicalite Co., New York, has recently issued a 16-page catalog describing the processing methods it employs in the manufacture of diatomaceous silica products, used as fillers, filteraids, insecticide carriers, etc. The catalog describes the specifications and properties of the several grades manufactured. Copies available on request.

### 441—Chemist Directory

The Association of Consulting Chemists and Chemical Engineers, Inc., New York, has just issued a directory of association members for 1938. The directory lists organizations of consulting chemists, chemical engineers, and directors of consulting and testing organizations who are members of the association.

### 442—Sulphur House Organ

Freeport Sulphur Co., New York, has just published the January issue of its house organ, *Brimstone Brevities*. The issue contains a bibliography of articles on insecticides and fungicides which have appeared in recent publications. Copies available on request.

### 443—Dust Control Booklet

W. W. Sly Mfg. Co., Cleveland, has issued a booklet called "The Dust Problem in Business". It points out the importance of dust control in industry for health reasons, and outlines methods of control. Copies available on request.

### 444—New Mathieson Booklet

Mathieson Alkali Works, New York, has just issued a booklet tracing the development of the company from its beginnings in 1895 to the present time. It also contains flow charts outlining the processing operations at the company's different plants, and a section giving the chemical buyer information and package specifications on the company's products. Copies are available on request.

### 445—Lanolin Broadside

Bopf - Whittam Corp., New York, lanolin producers, have just issued a broadside showing the percentage of cholestrol in the lanolin which they produce, as compared with competitive products.

### Cracking of Toilet Soap

(*From Page* 29)

and bad plodding. In fact every portion of the process was in turn blamed for this very serious defect. Finally, the cracking was proved to be due to the chilling of the ribbons on the transporter during their passage to the plodders. The cracking was instantly stopped when the general room temperature was increased by the installation of more radiators.

It is furthermore interesting to note that, in the case cited by this authority, cracking had been far more prevalent in the winter than during the summer months. During the May to October period in which no cracking at all took place, the average temperatures obtained were as follows:

Chips before mixing..23-24°C.
Leaving mills .....34-36°C.
Entering plodders.....30-31°C.
Leaving plodders .....39-40°C.

He therefore recommends, and with good reason, that the tempera-

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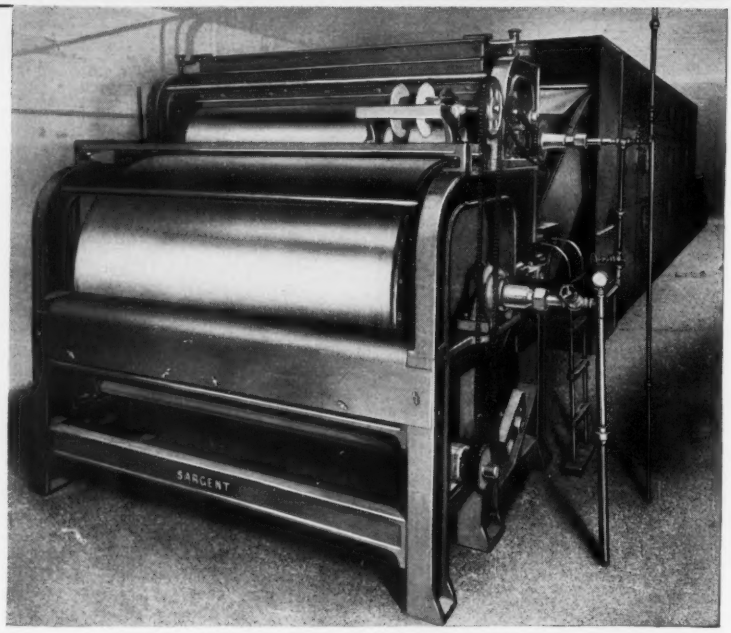
## *a Soap Chilling Roll and Drying Machine*




AS the title indicates, the Rolls are NEW and the entire machine is NEW, many valuable improvements having been perfected until this latest Sargent development is now one of the very finest Rolls obtainable.

To the soap manufacturer, the most important angle is to have a *thin, uniform chip* . . . readily accomplished by these new Rolls being expertly machined, ground and set. Finest grade of cast iron. Vari-speed controls on both Rolls insures easy adjustment . . . every part accessible. Drive improvements reduce the horsepower used. Changes made at a minute's notice. The Dryer is entirely re-designed. Its housing gives better insulation and cuts down steam consumption per hour. Other valuable changes have been made in the circulating and exhaust air systems . . . and all *fans* are *direct motor driven.*

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ture of the ribbons entering the plodder should not be allowed to fall below 28°C. and that the whole of the plant should be kept free from outside draughts and maintained at a temperature level that roughly approximates to that normally existing during the warmer months.

Finally we have to consider what is probably the most important factor of all, and is certainly the most interesting,—the correct balancing of the fat charge. In my opinion, the qualifications that are most helpful in this connection are a proper understanding of the milled soap process and its limitations, and a certain familiarity with the technique of soft soap manufacture. An incorrectly balanced fat charge is referred to as being a mixture of "too high a titer" or possessing "too high an I.N.S. factor",—the I.N.S. factor devised by Webb being simply the saponification value minus the iodine number,—a purely arbitrary standard that is based on nothing other than practical observation on toilet soaps made primarily (i.e. not less than 60 per cent) from tallow, palm, bone grease and coconut mixtures.

The limitations of the I.N.S. factor have been freely admitted by Webb from the outset, and further criticised by F. H. Terleski and R. L. Datta, but the fact does remain that the I.N.S. factor is useful in practice as a ready indication of hardness, although it just as certainly explains nothing and, in fact, leaves the man who wants to get at the root cause of the trouble even more bewildered than before.

Now the work recently carried out by Sadgopal is really enlightening in this respect, for by putting forward a highly probable theory it enables one to see the problem in clearer terms than hitherto,—that is to say, in terms of crystallizable and colloidal constituents of the fat charge, rather than in terms of hardness, softness or the useful but meaningless I.N.S. Not only that, but it also brings the problems of coconut oil content, super-dried chips, and the improving action of superfatting agents, all into clearer focus — especially if his theory is considered largely as an extension of the technique already employed in the production of soft soaps on the one hand and transparent soaps on the other.

Briefly, as first described in the *Indian Soap Journal*, Sadgopal made up sodium soaps from the following oils and fats, using (a) cold, (b) semi-boiled, and (c) settled processes:—sesame, olive, palm, arachis, coconut and mohwa oils, and mutton tallow. Also mixtures of 70 per cent mohwa, 20 per cent sesame, 10 per cent coconut; and 65 per cent tallow, 25 per cent olive, and 10 per cent coconut oil. Thus 27 samples of soap were prepared in all, the water content, when freshly prepared, varying between 20 and 28 per cent. None of these soaps exhibited cracking, even on keeping for two years or during actual use; thus showing that all these soaps of varied composition, made by the three processes but without recourse to the regular methods of toilet soap manufacture by machines, do not exhibit any cracking.

Soaps similar to these control samples were separately chipped, dried, milled, plodded and stamped. According to Sadgopal, uniform treatment was given to every batch, under more or less similar conditions, using the best of up-to-date machines and taking all possible precautions. In spite of all this, definite cracks developed either immediately on stamping or on keeping,—except in the case of the soaps of sesame and olive oils, which showed no cracking at all, and those made from palm and peanut oils, which of the rest showed the least amount of cracking.

From the foregoing experiments and from observations in regard to transparent soaps etc., Sadgopal draws the following conclusions: "Cracking of soaps has its origin in the innate tendency of the individual crystallizable soaps of the constituent glycerides in the oils and fats. The soaps made out of the oil stock predominantly rich in the non-crystallizable glycerides, i.e. the liquid glycerides of unsaturated character, do not crack at all. This class of stock is represented by the oils of olive and sesame. Again, soaps made out of oil stock composed of the crystallizable and non-crystallizable glycerides present in a properly balanced proportion show very little cracking. The oils of palm and arachis (peanut) are the two examples of this sort. Finally, soaps made out of oil stock rich in crystallizable constituents exhibit a very strong tendency to crack."

In the case of soaps not mechanically treated, the individual constituent soaps of various fatty acids of both crystallizable and non-crystallizable characters find their own natural places in the soap-mass according to their individual specific gravities, during the necessary long time which should be and is always allowed for framing. Thus the phase of the crystallizable soaps gets distributed throughout the mass in its natural order, enveloped by the other phase of the non-crystallizable soaps acting more or less as solvent for the former. This is in fact responsible for the development of the characteristic streaks of individual crystallizable soaps in the total mass of soap slabs and bars. According to the high and low percentage of non-crystallizable soaps present, the mixed soaps will be more or less translucent respectively. Thus the innate tendency of the crystallizable soaps to crystallize out is not hindered and such a development proceeds most naturally and freely in the "fluid medium" of the non-crystallizable soaps. No doubt, the high content of water does positively help in allowing free crystallization without cracking.

Sadgopal proceeds to contrast this state of affairs with machine-made soaps, in which the fine state of division, repeated milling, etc., leads to a state of affairs, he believes, where owing to the forced removal of the solvent-medium-like influence of the non-crystallizable phase, and also to the lower moisture content, the individual crystallizable soaps of the constituent fatty glycerides begin crystallizing out from every point

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in the cake. During this process, they cause cracks throughout the body, due to the internal resistance met at every point, because of lack of the necessary "fluid medium".

As a remedy for cracking, he suggests either the addition of suitable binding agents to the soap, during the milling process, or the balancing of the fat charge to include a sufficiency of non-crystallizable soaps. Otherwise, he states that the only door left open is the complete avoidance of the modern chipping, milling and plodding process,—although, in the light of his researches, it should be possible at least to recognize the limitations of the milled soap process and balance the fat charge accordingly.

THIS balancing of crystallizable and non-crystallizable constitutents becomes in practice much the same thing as choosing a fat mixture according to titer or I.N.S. number,—but the difference surely lies in the fact that, with the former consideration in mind, it is possible to get a different, more realistic view of the problem and not be confined so closely to working in the dark.

From Sadgopal's work it is easy to appreciate, for example, the reason underlying the fact that one cannot possibly make a good, non-cracking soap out of coconut oil, although excellent soaps of this type may be produced by the cold process. Light is also thrown on the fact that soap chips with a bloom of crystallized soap on them frequently cause trouble through cracking, as do also the super-dried crystalline particles mentioned by Webb and H. P. Martin. One may also note that, in the case of transparent soaps (which do not crack), the function of substances inducing transparency is to produce jelly and retard crystallization.

A fellow soapmaker, in agreement with Sadgopal's theory, has written to me to say that a "soap made from a low titer fat appears to be more likely to make a flake that will not break and a toilet soap that will not crack than one made from a base like tallow." This view, though rather sweeping, is at any rate partially held by all those soapmakers who have learned to replace part of the tallow with skin grease or hog fat, when the titer of the fat mixture tends to become too high.

What, then, is the ideal fat charge for toilet soap making, if cracking is to be avoided? Of course, no set answer is possible to this question, as many considerations govern the constitution of the fat charge. Even so, it is apparent that toilet soaps based on palm and olive oils are likely to be less prone to cracking than those based on tallow and coconut oil. For the rest, fats rich in stearin and palmitin,—such as tallows, palm kernel oil and coconut oil,—should be adequately balanced by suitable oils and softer fats, such as lard, olive, sesame, peanut, corn, castor and cottonseed. In brief, the requirements of soft soap technology should be borne well in mind, in order to provide the milled soap equipment with a base that will inherently suit the toilet soap process and will not tend to cause cracking by crystallization. Excessive drying out of the chips must of course be guarded against, while the intimate milling-in of a little white potash soap (an old soapmaking trick) also tends to prevent crystallization, but only if thoroughly incorporated. The use of superfatting agents in this connection has already been mentioned.

## Synthetic Detergents

(*From Page* 35)

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**(To be concluded in next issue.)**

# Sanitary Products SECTION

A Section of "SOAP" dealing with

## Insecticides • Disinfectants • Moth Products
## Floor Products • Polishes • Chemical Specialties

| FEBRUARY » 1938 | | | | | | |
|---|---|---|---|---|---|---|
| SUN | MON | TUE | WED | THU | FRI | SAT |
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| 27 | 28 | | | | | |

| MARCH » 1938 | | | | | | |
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| APRIL » 1938 | | | | | | |
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| MAY » 1938 | | | | | | |
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| 22 | 23 | 24 | 25 | 26 | 27 | 28 |

# make it a SANTOCHLOR year!

PHOTOGRAPH SHOWS SANTOCHLOR 34 (medium) CRYSTALS, ACTUAL SIZE

### SANTOCHLOR SPECIFICATIONS

**Appearance:** White, uniform crystals.
**Odor:** Characteristic.
**Crystallizing point:** 52.8° C. min.
**Vaporization:** Complete without residue.

CHEMICALS OF QUALITY — Monsanto — ST. LOUIS, U.S.A.

PLAN to concentrate on the marketing of paradichlorbenzene products this year. Public demand has been established. You can best satisfy this demand by packaging Santochlor — the paradichlorbenzene that remains first choice of leading insecticide and sanitary specialty manufacturers.

**Monsanto Chemical Company**
**ST. LOUIS, U.S.A.**

NEW YORK CHICAGO BOSTON BIRMINGHAM
CHARLOTTE CLEVELAND MONTREAL
LOS ANGELES SAN FRANCISCO

**THREE HUNDRED CHEMICALS FOR AMERICAN INDUSTRY**

*lling Power –*
*hat's the Thing.*

Wise planning for 1938 will mean you must give more careful consideration than ever before to your Pyrethrum Extract.— Only with a NATURAL extract will you be sure of sludge-free, non-staining quality.— POWCO BRAND Basic Pyrethrum Extracts are not made with a hot process (volatile solvents) which extracts excess resinous material.—We suggest that you select with care, for a care-free year.

**JOHN POWELL & CO., INC.**

**114 EAST 32nd STREET** **NEW YORK**

*Specialists in Pyrethrum and Rotenone*

# ISOROMES

*for perfuming*

## ISOPROPYL ALCOHOL

**BASE**

## THEATRE SPRAYS

*"Excellent Perfume Value At Low Cost"*

**Entirely Soluble In**
**A 60% Solution Of**
**Isopropyl Alcohol In Water**

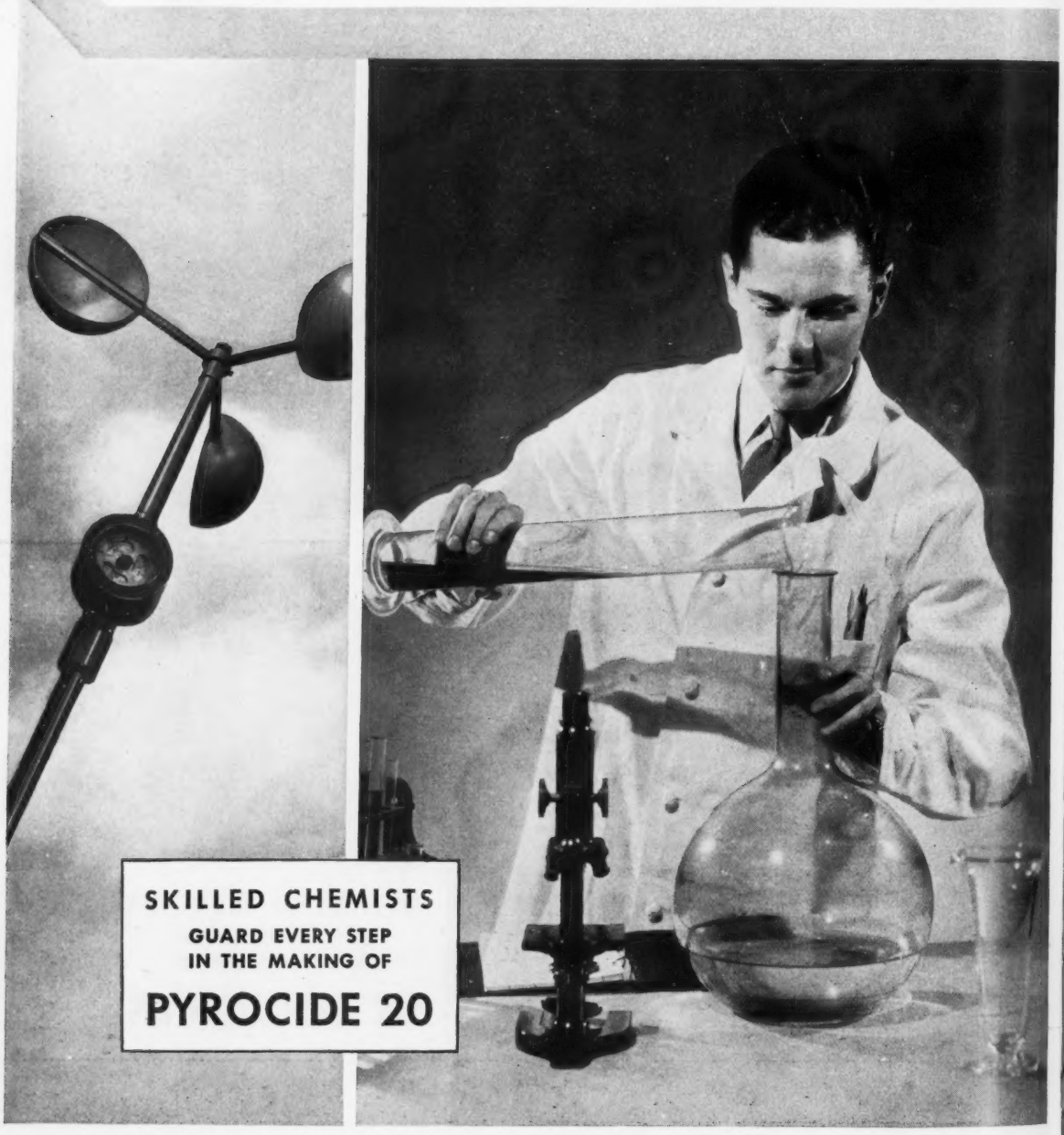
| | No. | | No. |
|---|---|---|---|
| Bouquet | P.A.4632 | Narcissus | P.A.4632A |
| Carnation | P.A.1707 | New Mown Hay | P.A.3746 |
| Gardenia | P.A.2418 | Orange Blossom | P.A.3961 |
| Honeysuckle | P.A.2555 | Oriental | P.A.3933 |
| Jasmine | P.A.2930 | Rose | P.A.4386 |
| Lavender | P.A.3107 | Sweet Pea | P.A.4675 |
| Lilac | P.A.3108 | Violet | P.A.5426 |
| Lily of the Valley | P.A.3109 | Wisteria | P.A.5442 |
| Mint | P.A.3522 | Wild Rose | P.A.5368 |

*All Priced At* **$2.50** *Per Pound*

# P. R. DREYER, INC.

**12 East 12th Street**
**New York, N. Y.**

# ZERO FOR BRIGHT



SKILLED CHEMISTS
GUARD EVERY STEP
IN THE MAKING OF
PYROCIDE 20

# 24 HOURS–THEN AND CLEAR!

## CHECK THESE SPECIFICATIONS

**1. Pyrethrin Content:** 2.5% by weight or 2 grams per 100 c.c.

**2. Stabilized:** Retains its strength. Stabilized with antioxidant that has been proved effective by laboratory tests and commercial use over two years.

**3. Killing Power:** Guaranteed equal to or better than any extract of equivalent pyrethrin content.

**4. No "False Pyrethrins":** Patented process removes materials which are not pyrethrins but which react like pyrethrins when assayed by the Seil method.

**5. Odor:** Made only with odorless base oil. Practically free from odor, except the natural floral aroma of pyrethrum. No Kerosene used in Pyrocide 20.

**6. Color:** A rich amber. Free from colloidal green coloring matter. The purest form of pyrethrins commercially available.

**7. Clarity:** Dilutes brilliantly clear with any base oil. Remains clear either in concentrated form or when diluted for use.

**8. Economy:** No increase in price for improved odor — improved color — improved stability — improved clarity. Requires ⅓ to ½ less perfume.

*After our special chilling process, Pyrocide 20 is crystal clear and remains clear either in concentrated form or when diluted!*

Choose any base oil for your household insecticide. You can be sure that Pyrocide 20 will dilute brilliantly clear with it because resins and other materials that cause clouding have been removed by a special process which chills the finished concentrate at 0° C. for 24 hours.

This is one of the many steps that makes Pyrocide 20 the purest form of pyrethrins commercially available. Even "false pyrethrins," materials which react like pyrethrins when assayed by the Seil Method, are removed by a patented process.

In fact, we spare no effort or expense to make Pyrocide 20 the finest killing agent available. It is deodorized . . . saving you ⅓ to ½ in perfume costs. It is stabilized with a proven antioxidant. It is shipped only in welded all-steel drums.

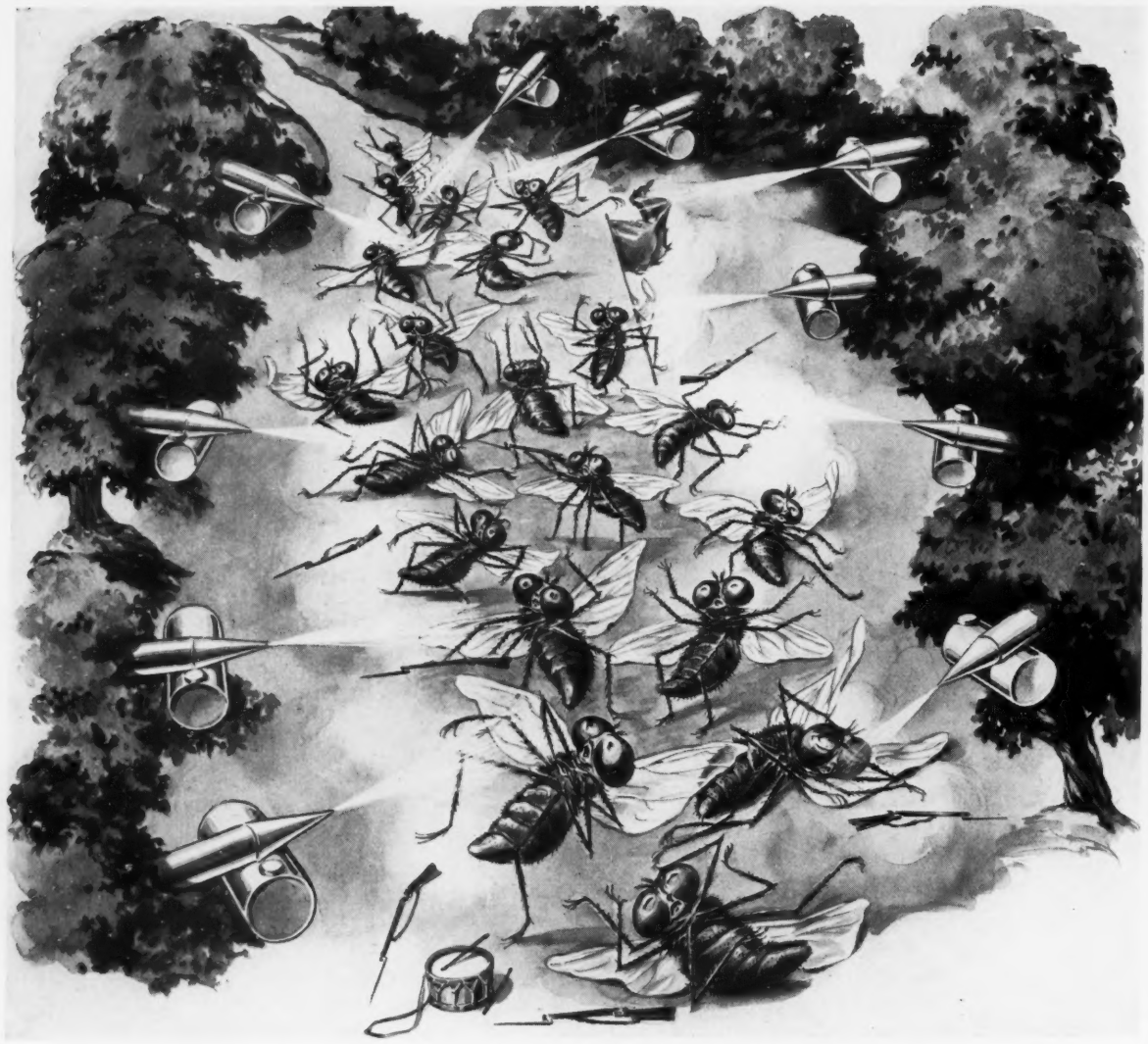
Yet you pay no premium for this superior pyrethrum concentrate because Pyrocide 20 comes in only one grade, the *best,* and it sells at the regular price.

If you have not already joined the hundreds of manufacturers who are making better insecticides with Pyrocide 20 — investigate this improved pyrethrum extract at once. Learn how Pyrocide 20 can improve your product at no additional cost . . . how you can actually save money by using it. Today — write for FREE booklet, "PYROCIDE 20, Deodorized — Clarified."

McLAUGHLIN GORMLEY KING COMPANY
*Manufacturing Chemists • Minneapolis, Minnesota*

# PYROCIDE 20

**THE PUREST FORM OF PYRETHRINS COMMERCIALLY AVAILABLE**



# AMBUSHED ARMY

**Insects don't stand a chance when an Atlantic Ultrasene-base insecticide goes after them.**

**Atlantic Ultrasene is refined solely for use as a carrier for insect killers. Unlike a kerosene base, Ultrasene evaporates readily, leaves no unpleasant odor, no oily residue. That's why proprietors of places where food is stored or prepared—men who must constantly guard against dirt-collecting oil films and disagreeable odors in restaurants, hotels, markets—are demanding Ultrasene-base insecticides. That's why successful insecticide manufacturers are choosing Ultrasene for their spray-base.**

**Find out more about Atlantic Ultrasene. Our technical department will help you with further information and liberal experimental samples. The Atlantic Refining Company, Specialty Sales Department, 260 South Broad St., Philadelphia, Pa.**

**ATLANTIC ULTRASENE** ***—A BETTER BASE FOR BETTER INSECTICIDES***

*When it comes to a Choice*

# THE PACKAGE SPEAKS!

**PACKAGE PERSONALITY** steps to the front from the store-keepers' shelves, and YOUR product finds a first-time sale • a chance to show long-time satisfaction! ★ "NATIONAL" PACKAGING gives personality to YOUR product. In design, color-treatment and practical essentials IT HAS EVERYTHING to lift sales opportunity high above its surroundings.

**"NATIONAL" PACKAGING** *Speaks up!* **IN A CROWD**

# DI-BUG
## PYRETHRUM EXTRACT No. 20

*Solves your manufacturing problems on Liquid Household Insecticides*

## *Because*

It has uniformly high killing power.

It is tested for Pyrethrin content by chemical assay (Dr. Seil's Method)

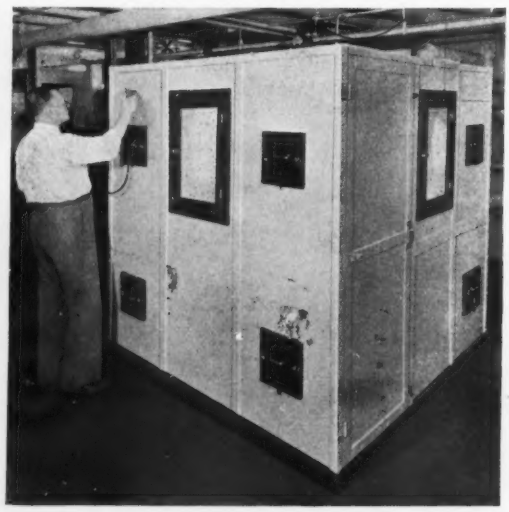
It is tested entomologically for knock-down and kill by the Peet Grady Method.

It has a guaranteed minimum Pyrethrin content of 2.5% by weight or 2 grams per 100 c. c.

Its manufacture is controlled by us from beginning to end—from the moment our importations of Pyrethrum Flowers reach the U. S. A. until our laboratories O. K. the shipment you receive.

We maintain our own entomological laboratory for the control of insecticidal raw materials which we manufacture and for research work, especially on the control of flying and crawling household insects.

***Wire, phone or write today for information and prices.***



**R. J. PRENTISS & CO., Inc.**
**100 GOLD STREET**
**NEW YORK CITY**

*MILLING AND EXTRACTING PLANT*
261 King Street
Brooklyn, N. Y.

We have purchased the Pyrethrum and Insecticide Division of the

**Sherwood Petroleum Co. Inc.**

Including their Pyrethrum Extract Plant and Testing Laboratories

# ....why gamble?

## ...when DEO-BASE gives you

Reg. U. S. Pat. Off.

1. Complete freedom from kerosene odor
2. Stability
3. Balanced fractionation
4. Correct evaporation rate
5. A flash point which meets all safety requirements
6. Controlled uniformity

*In your plans for 1938, select* DEO-BASE *as your carrier, so that your finished insecticide can be sold everywhere, for use anywhere.*

## L. SONNEBORN SONS, INC.

REFINERS OF WHITE OIL AND PETROLATUM

**Refineries: Petrolia and Franklin, Pa.** **Research Laboratories: Petrolia, Pa. and Nutley, N. J.**
**Manufacturing Plants: Nutley, N. J.**

**NEW YORK**
**88 Lexington Ave.**

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**215 West 5th St.**

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*Canadian Representative: Charles Albert Smith, Ltd., Toronto.*

***STOCKS CARRIED IN PRINCIPAL CITIES***

*Don't forget to attend the 13th annual Drug, Cosmetic and Allied Trades Dinner to be held March 3rd at the Waldorf-Astoria, New York*

1935 1936 1937 1938

# The GREAT CONCENTRATE of... PYREFUME

**SUPER 20 • SUPER 30**

Perhaps more insecticide sprays last year were made with Pyrefume than with any other concentrate. This year Pyrefume will undoubtedly pull far ahead of its field. Satisfied consumers mean repeat sales for dealers and a greater gross for manufacturers.

Want to know why your spray will go "great guns" when you "load" it with Pyrefume? Read . . .

## The A B C of PYREFUME Superiority

**A** "Knock down and kill" potency is above standard as demonstrated by physiological laboratory tests.

**B** Pyrethrins content of Pyrefume is *guaranteed*—2 grams per 100 cc. of Pyrefume 20; 3 grams per 100 cc. of Pyrefume 30 . . . proven by rigid assay *after* extraction.

**C** Stability assured through the use of freshly milled flowers and addition of special anti-oxidant, unique with Penick for many years.

**D** Blends clearly and perfectly with usual oil bases . . . all sediment has been removed. Stays clear.

**E** Stainless as a pyrethrum concentrate can be. Pour some insecticide made with Pyrefume on paper and note the difference as compared to ordinary pyrethrum extract. Waxes and resins have been removed by refrigeration.

**F** Singularly free from unpleasant odor. The natural fragrance of the flowers is evident, hence less perfume is required.

**G** Costs less — our wide botanical facilities and extensive purchasing power earn us savings which we pass on to you.

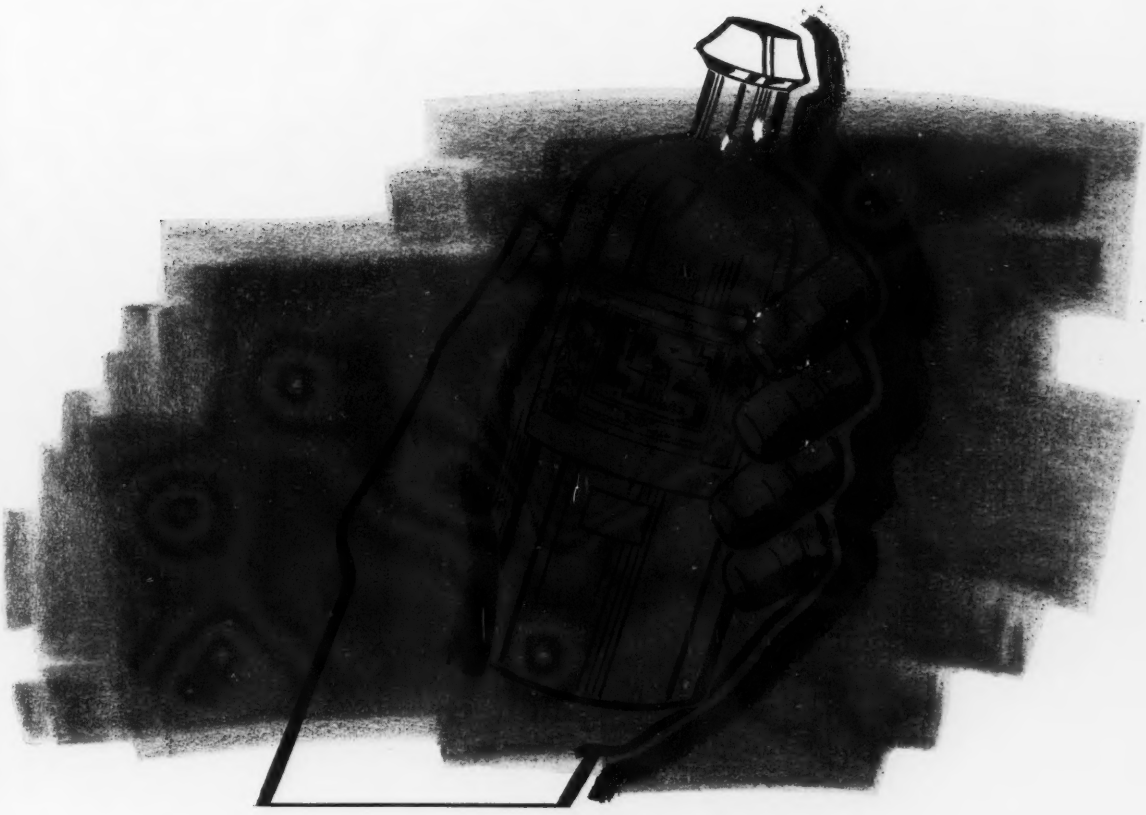
**Concentrate on PYREFUME for a quality concentrate**

## S. B. PENICK & COMPANY

132 Nassau Street, New York — 1228 W. Kinzie Street, Chicago

**THE WORLD'S LARGEST BOTANICAL DRUG HOUSE**

# YOUR FLY SPRAY ODOR_



# COMPOUNDED TO ORDER

**There is considerable difference between a correctly scented fly spray and one scented on a hit-or-miss basis. One gives permanent satisfaction and leads to repeat sales while the other is apt to give trouble or fail to fulfill its purpose properly.**

**Givaudan chemists have studied the problem from every angle and are prepared to give your products the specialized attention they deserve. We will develop, on order, an odor that will meet your individual requirements *correctly and economically.* It is a service we have perfected through long pioneering experience. A word from you will put us to work on your problem.**

**GIVAUDAN DELAWANNA, INC.**

**80 FIFTH AVENUE, NEW YORK, N. Y.**

Branches: Philadelphia Los Angeles Cincinnati Detroit Dallas
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NEW

*Super odor for Fly Sprays*

# KEROMA

FLY SPRAY MANUFACTURERS
SALUTE "AROMATICS" *NEW*
*1938 MODEL* **FLY SPRAY ODOR**

**USE** FROM 1/8 to 1/4 OUNCE TO
THE GALLON OF YOUR **FLY SPRAY**

**COST** ONLY 2 CENTS PER GALLON
TO CORRECT YOUR FLY SPRAY ODOR
AND GIVE IT CONSUMER APPEAL

SEND FOR SAMPLE
AND MAKE YOUR TESTS NOW
FOR NEXT SEASON

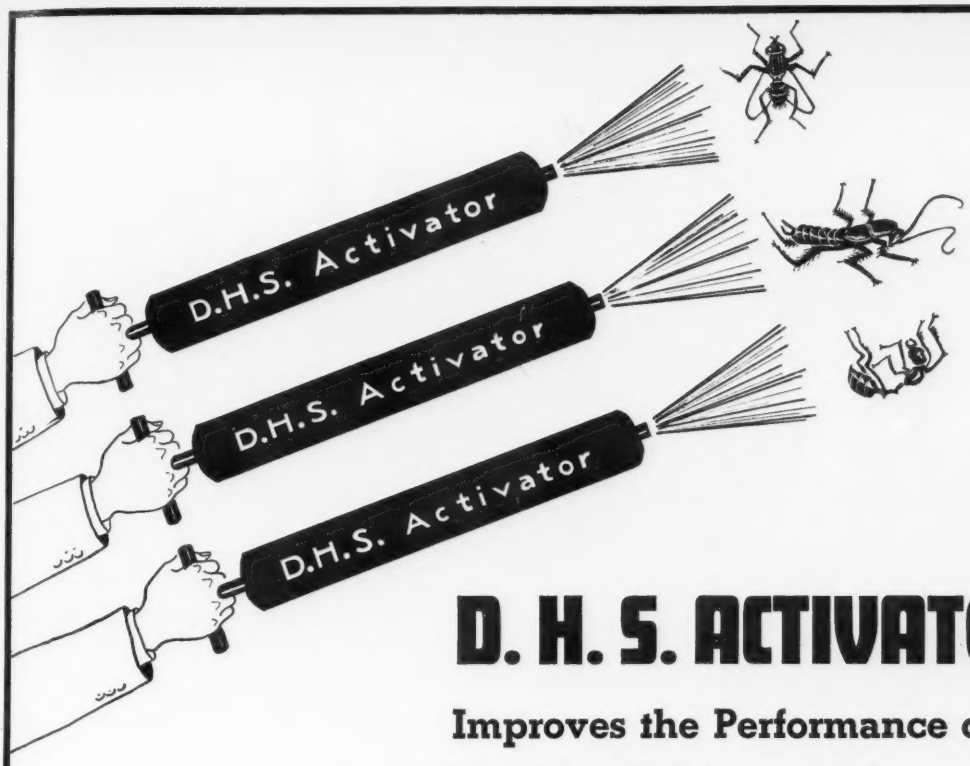
**ODOCENE**
THE REFRESHING SPRAY ODOR
SEND FOR SAMPLE

**VITACENE**
THE FLORAL SPRAY ODOR
SEND FOR SAMPLE

**AROMATIC PRODUCTS, INC.**

**15 East 30th Street, New York City — Factory: Springdale, Conn.**

ATLANTA 432 Marietta St., N.W.
PITTSBURGH 727 Grant Building
CHICAGO 205 West Wacker Drive
SAN FRANCISCO 503 Market Street
BOSTON 80 Boylston St.




# D. H. S. ACTIVATOR

## Improves the Performance of Household Sprays and Liquid Insecticides

The addition of a small percentage of D.H.S. Activator to pyrethrum-base liquid insecticides results in:

**1:** *Prolonged toxic activity.*

**2:** *Increased uniform knockdown and kill.*

SERVING INDUSTRY 1913 25th Anniversary Year 1938

Return the coupon for further information.

Hercules produces and sells Steam-distilled Pine Oils, Wood Rosins, and Steam-distilled Wood Turpentine.

*HERCULES NAVAL STORES*

HERCULES POWDER COMPANY INCORPORATED

961 Market Street, Wilmington, Delaware

**Branch Offices:**
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HERCULES POWDER COMPANY INCORPORATED, 961 Market St., Wilmington, Delaware

Please send information about D.H.S. Activator.

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Company _____

Street _____

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# MORE Killing Particles per Ounce

**NOWHERE** in the world will you find Pyrethrum and Derris Powders which are ground finer than those produced by McCormick. The microscopic fineness of these powders means that each ounce is broken up into a vastly higher number of killing particles, which stick more closely to the vital parts of insects, insuring a quicker, surer kill. . . . For further information address: The McCormick Sales Co., Baltimore, Md. In Canada: McCormick & Co. (Canada) Ltd., 454 King St., West, Toronto, Ontario.

## McCORMICK'S

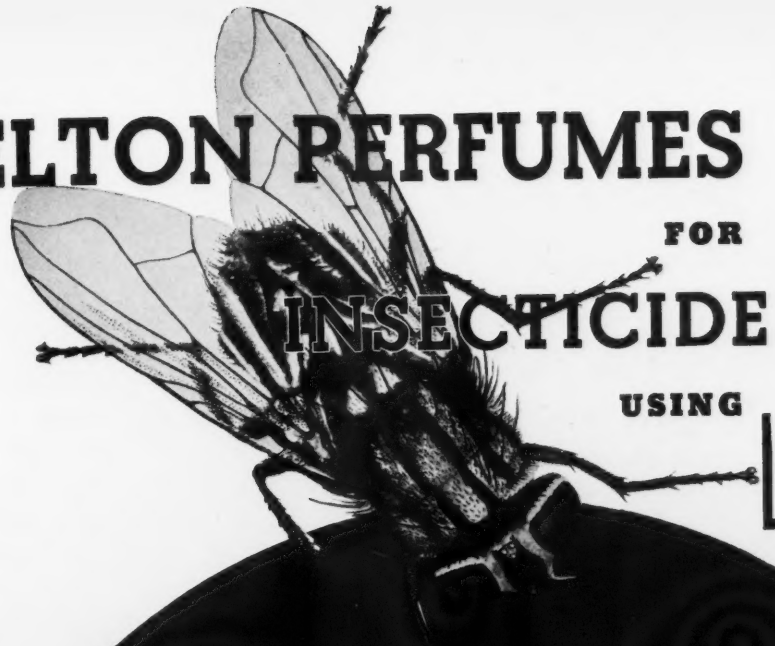
PYRETHRUM AND DERRIS POWDERS

★

*Also Manufacturers of*

DERRIS EXTRACT • DERRIS RESINATE • ROTENONE CRYSTALS

# FELTON PERFUMES FOR INSECTICIDE SPRAYS USING Lethane 384



The widespread use of Lethane in insecticide sprays and the modern trend for pleasantly perfumed sprays has presented a new perfuming problem which has been satisfactorily solved by the Felton Chemical Company. Felton offers two new perfumes which can be used to decided advantage in insecticide sprays using Lethane or mixtures of Lethane and Pyrethrum.

KEREX NO. 11—A light floral type. KEREX V-450—A clean, fresh, "outdoor" scent. Cost less than 2 cents to perfume a gallon of spray.

**KEREX NO. 11 AND KEREX V-450**

**Tested and Approved by Röhm & Haas, manufacturers of Lethane**

**Write for samples and proportions to use.**

# FELTON

**CHEMICAL COMPANY, Inc.**

**603 JOHNSON AVE., BROOKLYN, N. Y.**

Manufacturers of Aromatic Chemicals, Natural Derivatives, Fruit Ethers, Terpeneless Essential Oils, Vanilla Concentrates, Natural and Imitation Flavor Bases.

STOCKS CARRIED IN PRINCIPAL CITIES

# 1938 OFFICIAL TEST INSECTICIDE

## *now ready!*

THE 1938 Official Test Insecticide specified for evaluating liquid household fly sprays by the Peet-Grady Method under the new official specification of the National Association of Insecticide & Disinfectant Manufacturers, is now available for purchase in single six-ounce bottles or in boxes of one dozen six-ounce bottles. The 1937 Official Control Insecticide is now obsolete and should not be used.

Send orders or requests for information direct to the Executive Office of the National Association of Insecticide & Disinfectant Manufacturers, 110 East 42nd St., New York.

▼

*National Association of*
*Insecticide & Disinfectant Manufacturers, Inc.*

110 East 42nd Street New York

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R. H. YOUNG.....Davies-Young Soap Co., Dayton, O.

# YOUNG AND ACTIVE

## *but he can be trained!*

The new activators which have recently come to the attention of the insecticide industry, contribute increased effectiveness to the action of the spray. But they *do* present an odor problem.

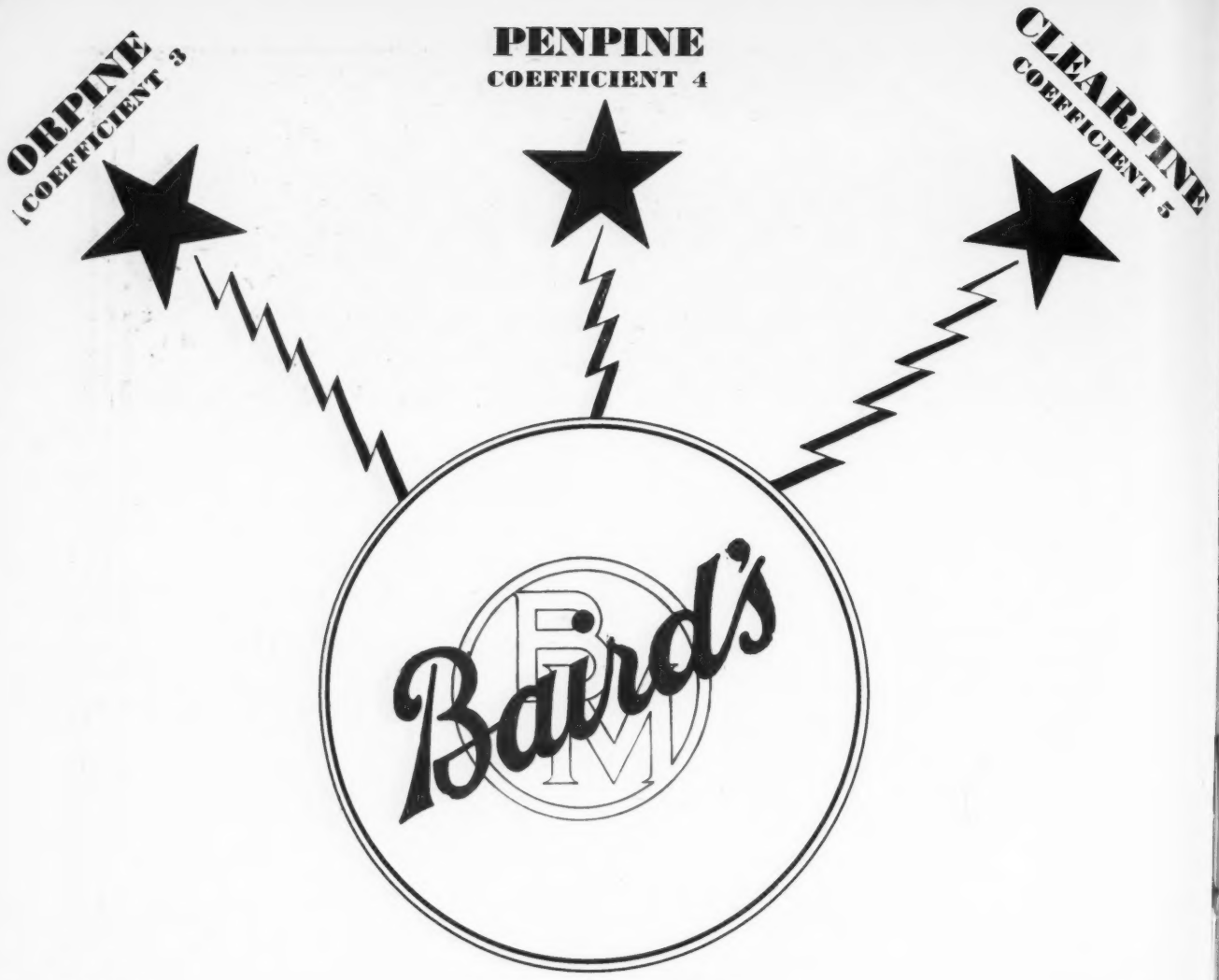
This objection has been successfully controlled in our laboratories. We can pleasantly and effectively cover the persistent odor of the activators.

In most cases, the perfume you are now using will not prove satisfactory when an activator is added to the spray base.

Send us a gallon of your product, unperfumed, in order that we may submit several pleasing and practical perfuming suggestions.

## VAN AMERINGEN-HAEBLER, INC.

315 FOURTH AVENUE NEW YORK CITY




STANDARDIZED

# PINE OIL DISINFECTANTS

***for the Wholesale Trade only***

The above products all meet the specifications adopted by the National Association of Insecticide and Disinfectant Manufacturers

## BAIRD & McGUIRE, Inc.

**Holbrook, Mass.** **St. Louis, Mo.**

*New York City and New Jersey Representative*

EASTERN STATES SUPPLY CO. 127 Troutman Street, Brooklyn, N. Y.

# Sanitary Products

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

LOWER liquid insecticide prices for the 1938 season have created quite a furore in the trade. Some leading brands are down considerably in price this year, early sales operations indicate. Other manufacturers are standing by their 1937 price levels. The drop in price, inasmuch as several of the most prominent quality brands are involved, is likely to have farreaching effects and bring down the general level of all small-package insecticides during the coming season.

Some manufacturers insist that the price drop may be a blessing in disguise, affording an opportunity for expanded sales. They point out that insecticides have in the past been too much of a luxury item,—priced so high that the potential users who really need them most have not been able to afford them. Others see in the price cut the start of a suicidal struggle for volume which will find some firms forced out of the field if it is long continued. They hold that the producer of a quality product can never compete on an even price basis with the concern that simply manufactures to sell at a price. The attempt to do so they declare is opposed to the best interests of the whole insecticide industry.

WHEN we make mistakes, there is always somebody to stand forth and remind us of our errors. From Chicago, we occasionally receive anonymous communications about our spelling. "Bedbug" is one of words which anonymous correspondent taught us to spell correctly. We had always written it as two words,—but one is correct. Now we have received another communication from the same correspondent who advises us to tell manufacturers of insecticides that "bedbug" is correct and that they should quit using "bed bug." So, Mr. Manufacturer, you are being told. You might as well have your label spelling of bedbug accurate whether your product will kill them or not. At least, it is a step in the direction of improvement.

TO the Commonwealth of Pennsylvania goes the latest palm for reinterpreting a state law which has been on the books for over twenty years, which now practically excludes manufacturers of insecticides and fungicides located outside of Pennsylvania from selling their goods in that state. Registration by outside *manufacturers* in Pennsylvania has been required for some years, even of household insecticides, although the law was originally drafted to cover agricultural products. Now, it is held, every *dealer* in the state who sells a "foreign" insecticide, must register and pay a fee of five dollars for each brand sold. Imagine a small retail druggist or grocer paying fifteen or twenty dollars yearly so that he may stock and sell three or four "foreign" brands of insecticides.

To all intents and purposes, "foreign" insecticide manufacturers are shut out. Maybe this is intentional. Who knows? At present, a revision of this severe reinterpretation of the law is being considered. We sincerely hope that the new interpretation will be abandoned, as it is distinctly unjust and a far cry from the original intent of the law.

# Labeling Insecticides in California

## The California point of view on advertising and labeling explained.

**By Dr. Alvin J. Cox***

*Chief, Div. Chem., Calif. Dept. of Agriculture*

THE mention of any government control frightens many manufacturers. No one has anything to fear if he keeps within the law. California registrants are familiar with California requirements, and willingly cooperate in their enforcement. The job of the Division of Chemistry is to protect the consumer and the legitimate dealer. Our California economic poisons law was passed at the request of the industry. The interest of the state and that of the manufacturer should be the same, and we believe the best law enforcement is secured by maintaining an intimate relationship with the industry. California law belongs to each registrant as much as it does to us, and manufacturers help us to enforce it.

The administration of the California economic poisons law is intended to be very personal. If we can help it, we do not allow a manufacturer to do something, and then tell him: No! No! The old system was to let a manufacturer do as he pleased regarding labels, after which he was told whether or not it was right. This is not cooperation as we understand it. Our policy is to make our present and anticipated requirements known.

California registrants know that they can confer with me at any time on any economic poisons problem. We spend hours of Sundays, holidays, and overtime, trying to acquaint registrants with the requirements of the law. We do not allow any insecticide to be labeled "safe", and we certainly would not honor a label such as one that was received that says: "Safe for children and pets" which, at the same time, carries the Poison Label as required by the poison law administered by the State Board of Pharmacy. In such a case we have only one recourse. In borderline problems where we have discretion, we are especially appreciative of your aid.

Recently, although no definite ruling had been made, a mountain has been made of a molehill in the discussion of the use of the word "kills vs. controls" on the label of an insecticide. This could have been avoided had we been in closer contact. We believe our heads are no less bald inside than they are outside, but we have no monopoly of ideas and always profit by discussion.

The Pacific Coast Insecticide Association, under date of November 26, 1937, made the written recommendation that..."no changes should be made in regulating the use of the words 'kill' and 'control,' with the exception that the Committee heartily endorses the action of your Department in stopping the flagrant misuse of these words in making improper claims."

I hope our point of view was made clear in my letter of November 27th, 1937, as follows:

"TO ECONOMIC REGISTRANTS:

The recent discussions of labeling and labeling requirements of economic poisons have especially impressed the Division of Chemistry with the interest of the industry in the desirability of satisfactory labeling.

During the last five years exceptional progress has been made by registrants in improving their economic poisons labels. The public more and more knows what constitutes acceptable labeling. Seeing good labels has educated it to the point where poor labeling has become bad advertising, as generally the poorer the material the more extravagant the claims on the label. Good products sell on their merits. The user is learning to expect a material to produce the results claimed for it.

The industry has pointed out that the word KILL is now commonly accepted as synonymous with the word CONTROL, or as having even less force. The Division acknowledges the validity of this opinion and will accept such usage of the word on labels of economic poisons. However, when the word KILL is used in a manner to imply a more complete and final effect than the particular economic poison is capable of producing, it is false and misleading and not acceptable. If one wishes to associate any word such as "improved", "activated", "stabilized", or "reinforced" with an economic poison that property should be subject to proof. The Division is willing to examine a proposed label before printing, to save the manufacturer the expense of correcting an improper one.

Misrepresentations are being eliminated. It is intended that regulations under the law shall stop

* Address before 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec. 1937.

obnoxious comparisons and unfair practices. The Division will strictly enforce the requirements relating to misleading or exaggerated statements and designs. The law applies not only to labels but also to advertising, such as circulars, pamphlets, and oral or written statements".

The California economic poisons law is very broad and could include fly swatters and mousetraps, but it has never been so interpreted. We go no further than there is direct protection to the public by our exercising authority. Formerly, sticky fly-paper, such as Tanglefoot, was not included but this material has become important in orchard use and we plan hereafter to include chemical insect barriers. There has been some overlapping with the State Department of Health and the State Board of Pharmacy but in practice these have been eliminated by conference.

Registration is not granted for sprays containing arsenic intended to be sprayed onto clothing or into living quarters.

Economic poisons used by servicing organizations require registration for in reality they are sold and, also, it is unlawful to manufacture or deliver any unregistered economic poison.

Formerly the department was fairly able to control in California the distribution of thallium salts through a gentleman's agreement with the chemical houses. However, this method became more and more unsatisfactory and the last legislature added an amendment to the Agricultural Code which states, "It shall be unlawful for any person to sell or to possess within this state any *thallium salts* or preparations thereof, unless same is for sale to and for official use for pest control purposes by Federal, State, or County officers or employees under their immediate supervision, or for sale to and for use by licensed physicians, surgeons, pharmacists, or veterinarians in connection with their respective professions".

The Division does not take jurisdiction over tonics and dealing in this class of material is a fruitful field for the chicken medicine shyster. A few weeks ago we expressed the belief to the applicant that his chicken dewormer was probably not eligible for registration inasmuch as it would appear to be of little value for the purpose intended. In reply he stated that it was originally manufactured as a tonic and as such it had to be sold in California only by registered pharmacists, but he thought if he would include a deworming agent he could register it as an economic poison and that then it could be sold by the public generally.

At one time a registrant secured registration of an aphicide and was soon selling it as an all-purpose insecticide. When taken to task that it was registered only as an aphicide, he called attention that the oils and sulphur made no claims at all. Therefore, in order to suppress extravagant claims for materials used in pest control it has become necessary to require each registrant to state the pest or pests to be controlled by a given economic poison. If this information is not stated on a label, it must be included on the application, or separately submitted. The scope of sale under a registration is limited to the acceptable statement of pests to be controlled. A supplemental enumeration of additional pests to be controlled may be submitted from time to time and if acceptable will be added to the statement. A fairly specific classification of pests is desirable. A legend stating "For the control of chewing insects" is in general too broad. For example, under Derris (or other rotenone containing materials) it will be acceptable to state—"For the control of thrips, aphids, cabbage worms, squash bugs, and harlequin bugs." Under fluosilicates—"For the control of tomato horn worms, corn earworms, and diabrotica beetles." Under miscible oils—"For the control of scale insects, canker worms, leaf rollers, European red mites, and other similar insects, or arthropods." Under household insect spray—"For the control of flies, fleas, mosquitos, clothes moths, and other similar insects."

Materials such as phenols, caustic lye, creosote, and sodium hypochlorite are disinfectants, and as applied to any individual organism, it will be acceptable to state—"For the control of micrococcus and other similar microorganisms"; or "For the control of (stating any desired microorganisms such as streptococcus) and certain other similar microorganisms." Phenols are general bactericides, but on the other hand, nicotine capsules cannot be recommended for the control of worm in poultry without qualification. Nicotine is used only for the control of pin and round worms in poultry and not for tape worms.

Purchasers of household insecticides are becoming more and more interested in the quality of the materials they buy. We are paying more and more attention to advertising of all economic poisons. Our law is interpreted to include legends, circulars, pamphlets, and other descriptive matter; designs whether printed, stencilled, stamped, seared, or impressed, which may in any way refer to the material; as well as to oral and written statements.

Last year at your Annual Meeting I emphasized the desirability of materials being sold on merit and not in a tapered bottle that, when empty, would serve as a bung for the wine barrel. Recently, a saleswoman told the customer that "the package makes a dandy bird bath." Is the manufacturer selling a package or a product? After all, you are selling the material back of your label. Perhaps some people will buy your product to get a "bird bath," or a cigar holder, but what about repeat orders? In some cases we take jurisdiction over the package. Very recently, after hearing, we denied registration for ant poison to be distributed in bottle caps. Such a procedure would be dangerous to public health.

All we ask is for the registrant to tell the truth and claim or imply

(*Turn to Page* 98)

# Application of Specifications in Purchasing

## N. A. I. D. M. Specifications as applied to the insecticide and disinfectant purchasing problems of New York City

**Dr. Stroud Jordan***

*Dept. of Purchase, City of New York*

THERE are two primary yardsticks applicable to the determination of any commodity value. We can specify a standard composition or be satisfied with a definite performance. In many cases both yardsticks are applied since definite composition does not always assure definite performance.

As an example, suppose we consider one of our simplest and most familiar chemical compounds. Salt is composed of definite proportions of sodium and chlorine. One hundred per cent sodium chloride has been and always will be the same. Deviations definitely indicate impurities which will vary, depending upon the source of crude salt, methods of purification and later contamination during packing, shipping, and storage. A specification for salt should, therefore, fix maximum amounts of each allowable impurity which, in turn, will fix the minimum acceptable sodium chloride content.

Even with composition definitely fixed the use factor will often indicate a changing physical state. If salt is intended for table use a definite particle size and the presence of material other than salt, for free-flowing properties, may be indicated. If it is intended for use in the lowering of temperature a larger crystal size and greater crystal density may be necessary. We see, therefore, that the fixing of composition is not sufficient in all cases and we must also look to physical properties to insure acceptable performance.

Salt has been taken as an example, since it is a *simple* and *definite* compound, yet we find that a composition standard does not always insure the proper commodity delivery. So it goes for all commodities. Simple and complex insecticides and disinfectants are no exception to this rule and no specification for their purchase may be based entirely on composition or performance. Both standards are essential but expediency does not always permit the use of the most desirable test methods to determine acceptability. If definite performance tests are specified and certificates issued that such a performance has been obtained by a disinterested and acceptable laboratory of National repute then tests for composition requirements should serve as a check. Specifications we are about to consider are based upon such requirements.

*Specifications for Disinfectants of Coal Tar Origin for General Purposes.* In any consideration of such specifications we must first determine the use factor. A disinfectant for surgical and laboratory use has been fixed in our standards as being in compliance with the U.S.P. XI. Liquid Cresolis Comp. We have felt that no further specification is necessary although there are those vendors who claim higher phenol coefficients for trade marked products. Expediency and suitability indicate that we accept the U.S.P. product for stated needs and tests given for the determination of composition assure the receipt of a satisfactory product. So much for laboratory and surgical disinfectants.

In so far as a general purpose disinfectant is concerned we have an entirely different story. The use of Liquid Cresolis Comp. is not necessary for general sanitation purposes nor is it the most efficient and economical. We have combined the clear and emulsified types as set up in the N.A.I.D.M. specifications, making a single specification for both. This results in *Type A*—to produce clear solutions with water and *Type B*—to produce emulsions with water. The following physical and chemical requirements serve to fix the types desired:

"The bidder shall submit with his bid the certificate of test in the form attached to this specification, duly executed and signed by the head of a nationally recognized laboratory. Failure to submit such certificate will cause rejection of bid.

"Containers shall be labelled in conformity with the Federal, State, and City regulations.

"Containers shall be plainly

* Address before the 24th annual meeting, National Association of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

marked with the type, phenol coefficient, net contents in U. S. standard gallons and the name of the manufacturer.

"Shipping containers shall be marked with the name of the material, type, phenol coefficient, quantity contained therein, name of contractor and the number of the contract or open market order.

"Disinfectants of each type shall be homogeneous liquids at 32° F. They shall be miscible with cold water, showing no separation or sediment after standing three hours at a temperature of 60° to 70° F.

"Disinfectants of each type shall be in compliance with the requirements of applicable standard specifications of the National Association of Insecticide and Disinfectant Manufacturers, latest revisions in effect at the time of invitation to bid.

"*Bacteriological*—The phenol coefficient shall be determined by the F.D.A. method of test (against B. Typhosus or S. Aureus, as stated in certificate). Latest revision in effect at the time of invitation to bid.

"*Chemical and Physical* — Liquid Disinfectants shall be tested in accordance with the methods prescribed by the Department of Agriculture, Bulletin 1308, latest revision in effect at the time of invitation to bid; provided, however, that any applicable method of test or examination satisfactory to the Central Testing Laboratory or other Laboratory designated by the Comptroller of the City of New York may be employed."

It is to be noted that tentative specifications set by the Department of Purchase of the City of New York, definitely require compliance with N.A.I.D.M. specifications, latest revision in effect at the time of invitation to bid. In this manner we are permitted to take advantage of all advances made by your association without amending our purchase specification.

*Specification for Disinfectant, Deodorant and Germicide* (sodium hypochlorite): In the N.A.I.D.M. specification three classes are set up. In the tentative purchase specification of the City of New York but one type is considered: sodium hypochlorite solution with definite chemical and physical requirements. Suppose we consider the salient points of this specification:

"The bidder shall submit with his bid the certificate of test in the form attached to this specification. The certificate shall be duly executed and signed by the head of a nationally recognized laboratory. Failure to submit such certificate will cause rejection of bid.

"*Note:* If the bidder has on file in the Department of Purchase an approved certificate of test on the brand on which he is bidding, he need not furnish another certificate with his bid.

"The furnishing of such certificate shall not be deemed to be a waiver of the right of the city to make tests of deliveries for compliance with this specification, and make rejection or acceptance accordingly.

"The sodium hypochlorite solution shall be a homogeneous liquid at 32° F. It shall be miscible with cold distilled water in all proportions, yielding a uniform solution showing no sediment or separation after standing one hour at a temperature of from 60° to 70° Fahrenheit. It shall be ready for dilution when delivered and shall require no intermediate operation.

"It shall show on analysis at time of delivery and also after six months a free alkali content, calculated as sodium hydroxide, of not more than 11 per cent of the available chlorine content.

"Sodium hypochlorite solution shall have an available chlorine content of not less than 4.5 per cent and not more than 7 per cent. If the sodium hypochlorite solution shows in excess of 9 per cent available chlorine upon delivery, it will be rejected without further examination. It shall be of such stability that if stored in original containers, or in tightly stoppered and sealed amber glass bottles, for six months, in a cool, dark place, it shall still contain not less than 4.0 per cent available chlorine."

The outstanding difference between the N.A.I.D.M. and the New York City purchase specification has to do with available chlorine requirements. A further reference to these requirements points out that the N.A.I.D.M. specification sets a minimum available chlorine content at 2.5 per cent and places no maximum limit while the tentative purchase specification of New York City requires a minimum of 4.5 per cent and a maximum of 7 per cent, rejecting any delivery of 9 per cent or more. It also requires 4 per cent available chlorine after 6 months of proper storage. This is a matter for full and frank discussion. Evidently the N.A.I.D.M. specification is too general for City use.

*Liquid Insecticides:* And now we come to the consideration of the remaining N.A.I.D.M. specification of interest. This is drawn entirely on performance and it is our contention that such a specification is subject to so much manipulation that it is unsatisfactory without a composition specification as well.

It was my privilege to talk with you two years ago when your meeting convened in New York City and at that time you were asked for assistance in formulating a specification that would be satisfactory for our use and still permit open competition. We think that the following requirements permit the necessary leeway:

"Liquid insecticide shall be non-staining, non-explosive, non-poisonous to man and shall not corrode metals or cause discoloration or deterioration of painted or varnished surfaces. It shall be free from obnoxious and disagreeable odors. It shall be free from suspended matter, and strong enough to kill bedbugs and roaches by the contact or permeation method.

"The use of cresylic acid, phenol, their derivatives, orthodichlorbenzine, paradichlorbenzine, naphthalene, acetone, nitrobenzol, chlorinated solvents, and other undesirable constituents is not permitted.

"The liquid insecticide shall consist essentially of a hydrocarbon base, free of kerosene odor and which conforms to the oil specification adopted as standard by the National Association of Insecticide and Disinfectant Manufacturers. An organic solvent is permissible. The insecticide as delivered shall comply with the requirements of any of the following formulae:

"(a) Not less than 0.3 per cent of pyrethrins and 0.1 per cent of rotenone or derris extraction containing 0.1 per cent of rotenone.

"(b) Aliphatic thiocyanates corresponding to a content of not less than 2.34 per cent of thiocyanoacetic acid plus 0.1 per cent of rotenone, or derris extractions containing 0.1 per cent of rotenone.

"(c) Aliphatic thiocyanates corresponding to a content of not less than 2.00 per cent of thiocyanoacetic acid, and pyrethrins corresponding to a content of not less than 0.26 per cent (the equivalent of 2 pounds of pyrethrum flowers extract).

"*Note:* The vendor shall submit a certificate showing the chemical composition of his product with his bid."

*Laboratory Insecticidal Evaluation*—One part of the delivery, when added to three (3) parts of the hydrocarbon base oil to make 4 parts, shall meet the requirements of the Peet-Grady standard test on house flies giving a 60 per cent kill in 24 hours and 95 per cent knockdown in 10 minutes at least equal to the official control insecticide of the N.A.I.D.M.

*Note:* The Pennsylvania oil adopted as standard by the National Association of Insecticide and Disinfectant Manufacturers for testing the relative resistance of flies bred in one laboratory as compared with those bred in another shall have the specifications as listed below:

| | |
|---|---|
| A.P.I. Gravity | 49-50 |
| Flash Point ("Tag" closed cup) | Above 120° F. |
| Initial Boiling Point | Above 350° F. |
| End Point | Not above 530° F. |
| Saybolt Color | 30 plus |
| Odor | Slight |
| Iodine Number, Hanus | Below 1 |

Such an oil when used by the Peet-Grady method against house flies should not give more than 20 per cent down and 6 per cent kill. House flies showing these average results shall be considered to have standard resistance to the action of liquid spray insecticides.

Liquid insecticide shall show no evidence of sediment or separation after standing 24 hours at room temperature, and shall remain in solution under all conditions and be neutral to litmus paper.

*Stain and Dry Test*—One cc. of the liquid insecticide poured on a sheet of white filter paper about 11 cm. diameter and allowed to evaporate at room temperature shall dry in approximately one hour and a half, and shall leave no stain after six hours.

"*Flashpoint* — The finished product shall have a flashpoint ("tag" closed cup) of not less than 120° F."

The foregoing insecticide specifications are based upon a strength satisfactory for killing bedbugs and roaches. Dilution of one part of this insecticide with three parts of base oil will be effective for flies and mosquitoes. A note in our specification sets forth this fact.

To fix compliance the vendor of such commodities must furnish a certificate of composition which will guarantee his product to be in compliance with one of the three types set up. It must also comply with standard requirements of the N.A.I.D.M. as set forth. In our case we must rely upon composition since its determination is expedient while with the Peet-Grady test we do not feel qualified to carry out the standard requirements.

Do physical characteristics, along with definite composition, fix acceptability? In other words: why do you employ a definite formula if performance of the finished insecticide is questionable? All arguments for a purely physical specification, such as performance, will allow any mixture within the limits of possibility. We insist that we should know the type of ingredients employed. With this information, chemical tests will serve as a satisfactory check.

## Labeling in California

(*From Page* 95)

nothing but the truth on a label or in an advertisement.

Occasionally we are asked why this or that product is registered. The answer is that it complies with the law. We have no authority beyond that of any other person except as the law gives it to us. In general, the ideals of the industry are as high as our own. We hope the time will come when it may be said that any product registered in California is satisfactory.

In closing, I wish to say I was much interested in a recent article entitled "Insecticide Specification,—What of Crawling Insects?" by Charles Opitz, President, John Opitz Inc. I wish to take the liberty of reading three sentences from the last paragraph, as follows: "It is my firm belief that the confidence of the public in the value of insecticides must be gained and then must be maintained by making certain that the insecticides offered to them by the manufacturers have real merit and real value and that they will perform the job claimed for them. Unless this confidence is earned and maintained, the insecticide industry will suffer considerably. Such confidence cannot however be maintained unless the industry adopts specifications and standards which will guarantee the production of suitable insecticides, and which will guard against the manufacturer who makes extravagant claims for a so-called 'all-purpose insecticide'."

These sentences express my sentiments. I would have been happy to have written them, and heartily endorse the principle of standardization. It is much better for the industry to do what is right without waiting for the law to require it. As Mr. Opitz has indicated, such action will not only protect the consumer but also the manufacturer. As a last word, to be facetious, when we require of you things you do not like, just remember also the ones you do not like that we haven't asked you to do!

# Dosage-Mortality in the Peet-Grady Method

**By Christopher A. Murray***

*Baldwin Laboratories, Inc.*

SINCE the writer by means of uniformity trials has outlined a dependable method of evaluating liquid insecticides (1), the purpose of this paper is to outline the possible range and accuracy of the above method when different insecticides are evaluated simultaneously. Eleven different concentrations of total pyrethrins were prepared with a standard twenty-to-one pyrethrum extract using a highly refined (colorless, odorless) petroleum distillate as a diluent. 450 c.c. of the extract were diluted with 2.550 c.c. of diluent to form 3.000 c.c. of a 300 m.g./100 c.c. total pyrethrins-content sample. Portions of this sample were then diluted to form eleven different 500 c.c. samples containing the various concentrations of total pyrethrins per 100 c.c. which were later tested. The samples were kept in tightly stoppered brown glass bottles to prevent any possible deterioration of total pyrethrins. The fly mortality tests were made according to the procedure outlined in (1) with the exception that the dosage administered in each of the present tests was fourteen c.c.

In Table I. are the (weighted) averages of per cent male dead, per cent female dead, and total per cent dead resulting from eight tests apiece on the eleven different concentrations of total pyrethrins, which were tested simultaneously in conjunction with the official control insecticide. The eleven samples together with the official control insecticide were tested in random order on each of eight different cages of flies. The dosage mortality data are plotted in Graph I. It is apparent from the dosage-mortality curves that their form is similar in character to the sigmoid or S-shaped curves that in general arise in biological dosage-mortality studies. Data in this form are not easy to handle or interpret and it is preferable to transform them so that the resulting dosage-mortality units bear a simple relation to each other.

Dr. C. I. Bliss (2), (3), (4), has given a discussion of the theory involved in this transformation, prepared tables of the transformed mortality units, and indicated all the mathematical formulae and statistical calculations to be used in the consequent interpretation and comparison of dosage-mortality data. Tattersfield and Martin (5) have already applied this form of analysis to pyrethrum data in their toxicological studies with aphis rumicus. Dr. Bliss has pointed out that in general equal increases in mortality result only when a toxic substance is increased by a constant proportion rather than by a constant amount. Since the susceptibility of flies may be normally distributed in any population tested, equal increments in mortality are expressed in probits or probability units. Constant amounts of toxic material may be expressed in constant proportions, if instead of amounts, common logarithms of amounts are used. Hence, if mortalities expressed in per cent kills are changed to probits and if amounts of poison are changed to their common logarithms, the resulting values should be directly proportional to each other. In Table II. are the concentrations of poisons used expressed in logarithms together with the corresponding (weighted) average per cent kills expressed in probits. These values are plotted in Graph II.

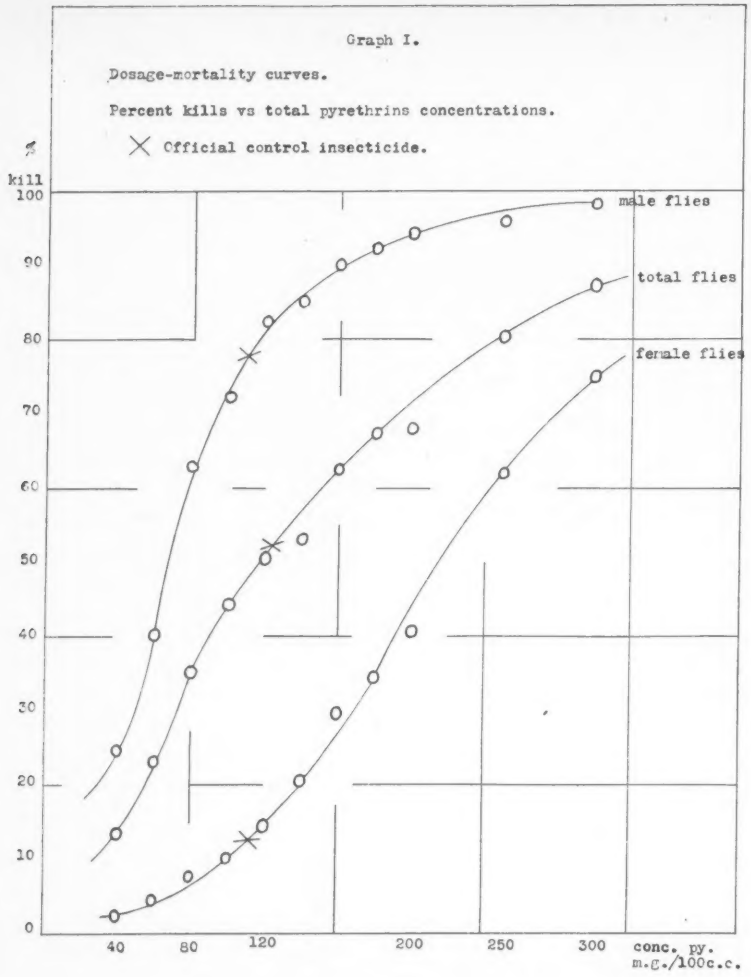
It should be noted here that chi-square ($x^2$) has been calculated for the male fly series of each cage using the method described by Bliss. The sum of the chi-square values, 72.7996, with 64 degrees of freedom,

* Address before 24th Annual Meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec. 1937.

**TABLE I.**

**Results of eight Peet-Grady tests on eleven different concentrations of total Pyrethrins evaluated simultaneously and in conjunction with the official control insecticide.**

| Concentration Total Pyrethrins, m.g./100 c.c. | (Weighted) Average Per Cent Male Dead | | | (Weighted) Average Per Cent Female Dead | | | (Weighted) Average Per Cent Total Dead | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. Males | No. Dead | Per Cent Dead | No. Fmls. | No. Dead | Per Cent Dead | Tot. Fls. | No. Dead | Per Cent Dead |
| 40 | 462 | 109 | 23.6 | 413 | 9 | 2.2 | 875 | 118 | 13.5 |
| 60 | 500 | 199 | 39.8 | 418 | 15 | 3.6 | 918 | 214 | 23.3 |
| 80 | 467 | 296 | 63.4 | 478 | 37 | 7.7 | 945 | 333 | 35.2 |
| 100 | 515 | 370 | 71.8 | 420 | 43 | 10.2 | 935 | 413 | 44.2 |
| 120 | 561 | 459 | 81.8 | 478 | 67 | 14.0 | 1039 | 526 | 50.6 |
| 140 | 469 | 400 | 85.3 | 473 | 98 | 20.7 | 942 | 498 | 52.9 |
| 160 | 550 | 495 | 90.0 | 452 | 130 | 28.8 | 1002 | 625 | 62.4 |
| 180 | 542 | 499 | 92.1 | 417 | 143 | 34.3 | 959 | 641 | 66.8 |
| 200 | 479 | 450 | 94.0 | 449 | 186 | 41.4 | 928 | 636 | 68.5 |
| 250 | 497 | 476 | 95.8 | 426 | 266 | 62.4 | 923 | 742 | 80.4 |
| 300 | 453 | 442 | 97.6 | 426 | 319 | 74.9 | 879 | 761 | 86.6 |
| O.C.I. | 544 | 424 | 77.9 | 422 | 54 | 12.8 | 916 | 478 | 52.2 |




probability equal to fifty per cent, indicate that the flies' reaction to the respective samples for each series was homogeneous.

From Line R-1, which represents the transformed dosage - mortality regression line of male flies, $x^2 = 10.821$, 9 degrees of freedom, $P = 0.30$, it is at once apparent that within the limits of random sampling error, the susceptibility of the male flies is uniform in increase throughout the range of about twenty-three to about ninety-eight per cent kill. (For convenience, the per cent kills corresponding to the probit scale are given on the right hand margin of the graph. At the top of the graph are given the concentrations which correspond to the logarithms on the lower scale.) The equation of the regression line has been calculated by the method of least squares, having been weighted as described by Bliss, and is:

$Y = 6.6272 + 3.2595\ (X - 2.0160)$

where X equals the logarithm of concentration and Y, the corresponding probit value. It is apparent that by substituting a value for logarithm concentration in this equation, the equation may be solved for any corresponding probit value; or vice versa, with any known per cent kill transformed to its probit value, the total pyrethrins content may be estimated. The reader is referred to Bliss' paper (4) for a discussion of the appropriate statistics and for the calculation of the limits of precision involved. Since the total pyrethrins content of the official control insecticide is unknown, it is interesting to estimate it graphically as about 110 milligrams per 100 c.c. The total pyrethrins content of the official control insecticide is supposed to be in the neighborhood of ninety to 100 milligrams per 100 c.c. This apparent increase in total pyrethrins content may be due to the kerosene base oils in the official control insecticide as contrasted to the highly refined petroleum distillate of the other samples. This phenomenon will be given a more critical examination later.

From Line R-2, which represents the transformed dosage - mortality regression line of female flies, it is apparent that the susceptibility of female flies is not uniformly increasing in the range from about two to about seventy-five per cent kill. A consideration of the data leads one to believe that within this range of female mortality there are two different ranges over which female susceptibility is approximately uni-

**TABLE II.**

**Logarithms of total pyrethrins concentrations with corresponding probit values for per cent male dead, per cent female dead, and per cent total dead.**

| Logarithm Concentrations | Probits of Per Cent Male Dead | Probits of Per Cent Female Dead | Probits Total Per Cent Dead |
|---|---|---|---|
| 1.6021 | 4.281 | 2.986 | 3.897 |
| 1.7782 | 4.741 | 3.201 | 4.271 |
| 1.9031 | 5.343 | 3.574 | 4.620 |
| 2.0000 | 5.577 | 3.730 | 4.854 |
| 2.0792 | 5.908 | 3.920 | 5.015 |
| 2.1461 | 6.049 | 4.183 | 5.073 |
| 2.2041 | 6.282 | 4.441 | 5.316 |
| 2.2553 | 6.412 | 4.596 | 5.434 |
| 2.3010 | 6.555 | 4.783 | 5.482 |
| 2.3979 | 6.728 | 5.316 | 5.856 |
| 2.4771 | 6.977 | 5.671 | 6.108 |
| O.C.I. | 5.769 | 3.864 | 5.055 |
| regression equation | $Y = 5.6272 + 3.2595\ (X - 2.0160)$ | 1st. 5, $Y = 3.6233 + 2.0831\ (X - 1.9416)$ Last 7, $Y = 4.7268 + 4.4242\ (X - 2.2723)$ | |

formly increasing. These ranges are expressed by the two straight portions of Line R-2. Hence, from 2.2 to 14.0 per cent kill, female susceptibility is uniformly increasing with the equation:

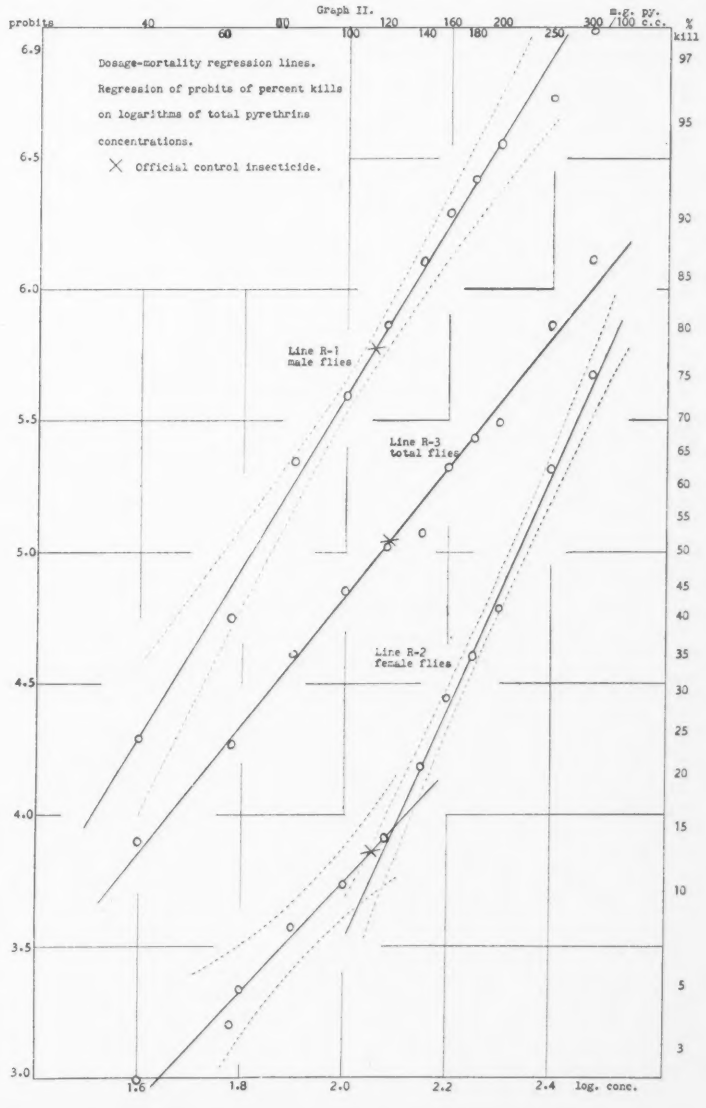
$Y = 3.6233 + 2.0831 (X - 1.9416)$
$x^2 = 1.0000$, three degrees of freedom, $P = 0.80$. Somewhere close to 14.0 per cent kill, the female susceptibility abruptly becomes less and is uniformly increasing from 14.0 to 74.9 per cent mortality with the equation:

$Y = 4.7268 + 4.4242 (X - 2.2723)$
$x^2 = 3.5079$, five degrees of freedom, $P = 0.60$, which is as far as these observations have been made. It must be concluded that if female flies are used as a basis of insecticide comparison, at least two regression lines must be used. For the range of 0 to 14 per cent kill, the first regression equation above may express the relation between probits and log. conc; and for the range fourteen to seventy-five per cent kill, the second equation above may be used.

From the above consideration, it is clear that when attention is given line R-3, which is the transformed dosage-mortality regression line for total flies, not too much confidence can be placed on the susceptibilities of total flies even if they appear uniformly increasing from the range thirteen to eighty-seven per cent kill. It is emphasized that the per cent kills, as well as being dependent upon the ratios of the female and male flies in the tests, are further disrupted by the female susceptibilities not being uniformly increasing for the indicated range. The equation of the regression line has not been calculated and one would be well advised to disregard it as non-dependable for the above reasons and use the separate male or female per cent kills only as a means of insecticide comparison.

Because of the different concepts of fly susceptibility that have appeared in the recent literature it should be well to digress for a few moments here and discuss them. Badertscher and Sullivan (5), (6), from their excellent work on semi-concentrates are quite correct in stating that an insecticide is better diluted to the fifty per cent kill level for a proper comparison. However, from the foregoing regression lines it is easily seen that it is not exactly true that "an increase in concentration of pyrethrum first brought about a corresponding increase in toxicity but at high concentration the mortality curve levelled off.

"In other words, although two semi-concentrate fly sprays may give equally high kills, they are not necessarily of the same pyrethrum content." The basic interpretation of susceptibility behind this reasoning may be clarified as is illustrated by the following adaptation of a discussion of Bliss. A concentration of pyrethrum kills, say, twenty-five flies out of 100 flies. This concentration is now increased to kill fifty flies out of 100. In killing the fifty flies, the higher concentration kills twenty-five of those which would have been killed by the lower concentration. The proper question to ask is, then, not "How many flies does the second concentration kill compared to how many the first concentration killed?" but rather, "How many more flies are killed (taking into account the normal distribution of fly susceptibilities) by what added proportion of the toxic substance?"



It is easily seen that it would take a correspondingly greater *amount* of insecticide to kill the second twenty-five flies, because these flies are quite a lot more resistant than the first twenty-five flies. To repeat, as illustrated in the case of probits versus logarithms of concentrations, which takes into consideration the change in susceptibility of flies as well as the added proportion of toxic material, *a corresponding increase in mortality* is attended with *a corresponding proportion of added insecticide.*

Hence, if a valid series of tests show an insecticide to kill ninety-five per cent of the flies and another ninety-six per cent, due to the additional one per cent of the flies being so much more resistant at this high level of mortality, it is quite reasonable to suppose that the higher kill insecticide differs by quite a measurable *amount* of toxic ingredients.

It is here that the correctness of Badertscher and Sullivan's conclusions lie, although based upon an apparent misinterpretation of susceptibility. It is very hard to obtain a valid comparison at the high level of ninety to 100 per cent kill because at this high resistance there are not enough insects in a set of 100 or so to react. For instance, according to Dr. Bliss' figures, if a mortality at fifty per cent kill is based on 100 flies, to attach the same weight to a kill of seventy per cent, one would need to use 110 flies, a kill of eighty, 135 flies, a kill of ninety, 190 flies, a kill of ninety-five, about 300 flies, a kill of ninety-seven, about 400 flies, and a kill of ninety-nine, about 800 flies. Thus, rather than test semi-concentrates as is, it is much better to dilute them so that comparisons can be made at the fifty per cent kill level where more confidence can be placed on comparisons than at the ninety per cent level and with a great saving in the numbers of flies used and work involved.

One further observation should be made concerning the regression lines. It will be noticed that the male flies furnish a better basis of comparison than the female flies because their susceptibility is the higher. For instance, between sixty and eighty milligrams of total pyrethrins on Line R-1, there is a difference in male kills of 23.6 per cent—a large and unmistakable difference; with female flies there is a difference of only four and one-tenth per cent in kills. Therefore, with the test designed as it is, the male flies serve as the best basis of insecticide comparison. It is easily seen that to distinguish the twenty milligram difference, fewer male than female flies would be needed if the comparisons for each sex were to have an equal weight. In general, it may be stated that the more susceptible insect is the better one to use for comparative insecticide evaluations under given testing conditions, provided these conditions cover the fifty per cent kill level. Further, it should be added that the susceptibility of the insect tested must be constant over the range of dosage-mortality of the samples under investigation.

In order to investigate more thoroughly the effects of diluent on the dosage-mortality relation in Peet-Grady evaluations, two series of five different concentrations of total pyrethrins were prepared. One series was prepared with a highly refined petroleum distillate as a diluent, and the other series was prepared with a kerosene as a diluent. In order that the resulting biological evaluation check as closely as possible under existing experimental conditions, a large group of flies was reared. It so happened that some of the maggots pupated two days earlier than the others. These pupae were assigned in bunches of 100 or so at random to six rearing cages. The later pupae were well mixed and these were also distributed to six rearing cages. The five samples containing the highly refined petroleum distillate as a diluent were tested in conjunction with the official control insecticide on the first six rearing cages of flies. A six by six Latin square design was used and all the tests were made on the same day when the flies were five days old. The Latin square design insured the testing of each sample once and only once on each cage of flies as well as at each of the six successive withdrawals of flies. It is a device for securing a representative sample. The diagram below shows the order of testing in the refined petroleum distillate experiment.

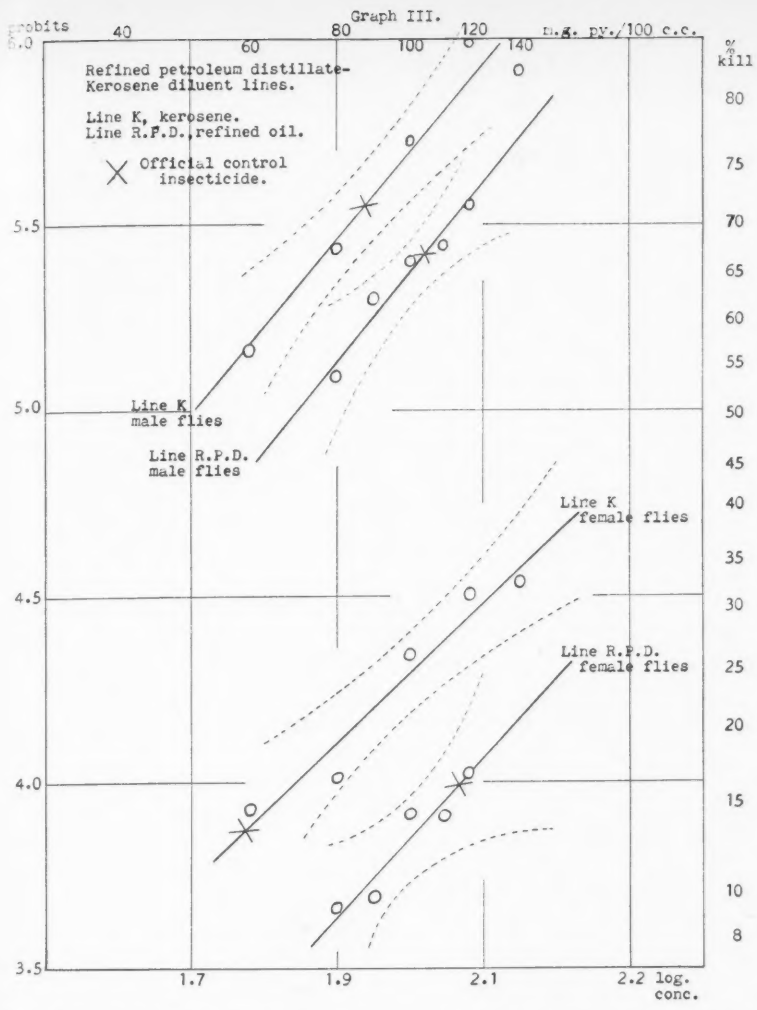
| | | CAGE | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| WITHDRAWAL | 1. | C | A | B | F | D | E |
| | 2. | F | E | A | B | C | D |
| | 3. | A | B | F | D | E | C |
| | 4. | D | C | E | A | F | B |
| | 5. | B | D | C | E | A | F |
| | 6. | E | F | D | C | B | A |

The sample numbers are in-

## TABLE III.

**Results of six Peet-Grady tests on five different concentrations of total pyrethrins in a highly refined petroleum distillate and in a kerosene evaluated simultaneously and in conjunction with the official control insecticide.**

| Conc. Total Pyrethrins m.g./100 c.c. | (Weighted) Average Per Cent Male Dead | | | (Weighted) Average Per Cent Female Dead | | |
|---|---|---|---|---|---|---|
| | No. Males | No. Dead | Per Cent Dead | No. Females | No. Dead | Per Cent Dead |
| **HIGHLY REFINED PETROLEUM DISTILLATE** | | | | | | |
| 80 | 410 | 220 | 53.7 | 350 | 32 | 9.1 |
| 90 | 426 | 263 | 61.7 | 332 | 31 | 9.3 |
| 100 | 493 | 324 | 65.7 | 342 | 48 | 14.0 |
| 110 | 474 | 317 | 66.9 | 344 | 47 | 13.7 |
| 120 | 451 | 319 | 70.7 | 376 | 62 | 16.5 |
| O.C.I. | 426 | 293 | 68.8 | 419 | 67 | 16.0 |
| **KEROSENE** | | | | | | |
| 60 | 284 | 160 | 56.3 | 358 | 51 | 14.2 |
| 80 | 289 | 193 | 66.8 | 357 | 58 | 16.2 |
| 100 | 315 | 241 | 76.5 | 342 | 87 | 25.4 |
| 120 | 359 | 301 | 83.8 | 289 | 89 | 30.8 |
| 140 | 299 | 245 | 81.9 | 332 | 106 | 31.9 |
| O.C.I. | 318 | 225 | 70.7 | 355 | 46 | 13.0 |




dicated by letters: A, 80 m.g./100 c.c.; B, 90 m.g./100 c.c.; C, 100 m.g./100 c.c.; D, 110 m.g./100 c.c.; E, 120 m.g./100 c.c.; F, official control insecticide.

The five samples containing the kerosene as a diluent were tested in conjunction with the official control insecticide on the second six rearing cages of flies. Another six by six Latin square design was used and all the tests were made on the same day when the flies were five days old—however, as these flies emerged two days later than the flies used in the first six cages, the second series of tests was made two days later than the first. The weighted average per cent kill results of the series are tabled in Table III. The corresponding transformed dosage - mortality units are tabled in Table IV, and are plotted in Graph 3.

The equation for the refined petroleum distillate male fly regression line is:

$Y = 5.3582 + 2.4135\ (X - 1.9960)$

$x^2 = 1.549$, with three degrees of freedom, $P = 0.65$; for the kerosene male fly regression line:

$Y = 5.6266 + 2.3531\ (X - 1.9722)$

$x^2 = 4.364$ with three degrees of freedom, $P = 0.22$.

The equation for the refined petroleum distillate female fly regression line is:

$Y = 3.8602 + 2.1604\ (X - 2.0051)$

$x^2 = 1.498$, with three degrees of freedom, $P = 0.70$; for the kerosene female fly regression line:

$Y = 4.2807 + 1.8483\ (X - 1.9926)$

$x^2 = 3.158$, with three degrees of freedom, $P = 0.35$.

It is at once apparent from Line K which represents the transformed dosage-mortality male fly regression line of Kerosene and Line R.P.D. which represents the same line for the highly refined petroleum distillate, that the effect of kerosene as a diluent is to boost the mortality of male flies for every concentration of total pyrethrins over that of the corresponding concentration of total pyrethrins in the refined diluent. At the point x which represents the official control insecticide, it is apparent that a standard twenty to one pyrethrum extract diluted to 100 milligrams of total pyrethrins per 100 c.c. in kerosene produces a product of a toxic content greater than the official control insecticide; on the other hand,

(*Turn to Page* 123)

**TABLE IV.**

**Logarithms of total pyrethrins concentrations with corresponding probit values for per cent male dead, per cent female dead, of the highly refined petroleum distillate and kerosene tests.**

| Logarithm Concentrations | Probits of per cent male dead | Probits of per cent female dead |
|---|---|---|
| HIGHLY REFINED PETROLEUM DISTILLATE | | |
| 1.9031 | 5.093 | 3.665 |
| 1.9542 | 5.298 | 3.678 |
| 2.0000 | 5.404 | 3.920 |
| 2.0414 | 5.437 | 3.906 |
| 2.0792 | 5.550 | 4.026 |
| O.C.I. | 5.490 | 4.005 |
| Regression equation | $Y = 5.3582 + 2.4135$ $(X - 1.9960)$ | $Y = 3.8602 + 2.1604$ $(X - 2.0051)$ |
| KEROSENE | | |
| 1.7782 | 5.159 | 3.929 |
| 1.9031 | 5.434 | 4.014 |
| 2.0000 | 5.722 | 4.338 |
| 2.0792 | 5.986 | 4.499 |
| 2.1461 | 5.912 | 4.530 |
| O.C.I. | 5.545 | 3.874 |
| Regression equation | $Y = 5.6266 + 2.3531$ $(X - 1.9722)$ | $Y = 4.2807 + 1.8483$ $(X - 1.9926)$ |

**KOPPERS** is a familiar and trusted name to many thousands of business men in many fields of enterprise. It not only produces chemical raw materials such as Tar Acids (Cresol, Phenol, Cresylic Acid), Tar Acid Oils, Naphthalene and Neutral Hydrocarbon Oil . . . it is also a designer and builder in many industrial fields, a producer of many types of materials, including coal, coke, machinery and mechanical devices; a manufacturer of many special products and a distributor of others. Koppers means something to almost every business man, and to all of them it means reliability, dependable products and fair dealing. Use Koppers products.

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Refined Tars
Pitch Coke
Industrial Coal Tar Pitches
Flotation Oils

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Benzol Recovery Plants
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Phenol Removal Apparatus
By-Product Gas Plants
By-Product Recovery Apparatus
Sulphur Recovery Apparatus
Coal Tar Roofing Materials
Waterproofing and Dampproofing Materials

Tarmac Road Tar Materials
Bituminous Base Paints
Coal
Coke
Fast's self-aligning Couplings
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# Standards or Policing—Which?

**By Clarence Weirich***

*C. B. Dolge Co.*

THE past year has demonstrated to some of our members the necessity for the development of adequate methods of evaluating some of the specialties they manufacture. Our Association has several committees of years' standing, working on insecticidal problems, and it would appear to be their function to report upon all insecticidal matters affecting the membership. However, it is most unfortunate that in the urgent necessity of concentrating upon the development of adequate biological testing of fly sprays, that the investigation of methods of testing other household insecticidal materials has necessarily been long deferred.

During the past year a roach powder has been offered by a small company to the trade with such startling claims that it would appear that a good part of the householder's insect problem would immediately be solved, and permanently too, by the use of this material. One claim for this material has been, "A thorough treatment with this powder will keep roaches away for years." Embarrassed by finding samples of this material in the hands of their customers several manufacturers have wished to see the material tested under carefully controlled conditions. They found to their surprise that there was absolutely no suitable method as yet evolved for comparing the efficacy of roach powder. A little consideration will show that there are a great many more factors involved in evaluating the performance of a roach powder than there are in evaluating the killing power of a fly spray. There is, for example, the question of the length of time such a powder can be expected to retain its insecticidal value, the effect of moisture on the powder, the repellent or attractive value of the material. All these are factors to be considered that do not necessarily enter into the evaluation of a fly spray by biological methods. The industry itself has no chance of seeing such methods evolved in the near future. It is only to be hoped that the entomology department of some university or some graduate school will see the importance of this problem and make an effort to solve it. What has been said about the testing of roach powders might well apply equally to a critical investigation of bedbug liquids.

The sanitary supply business is making increasing amounts of water wax yearly. A very great number of concerns, many of them very small indeed, who manufacture or job this material under their own brand name has increased tremendously. Each new arrival on the scene seems impelled to go beyond the claims previously made by anyone in the industry. There seems to be here a serious lack of any methods which will yield reproducible results in testing several of the properties of these waxes. There is at present a method sponsored by the rubber manufacturers for the testing of the water-resistance of these waxes, but apparently that method neither yields reproducible results, nor do the results of these tests seem to be comparable with the actual water-resistance of the material in actual use. There is a question of the measurement of the gloss of the wax, and of the measurement of the coefficient of friction, which determines the slipperiness of the material. The industry might well get together and through its technical men compare results and evolve some acceptable method of tests for these properties. This work could very well be done under the auspices of this Association.

The subject of water wax immediately brings up the question,—what is a standard water wax? Those who delight in specifications and feel that the promulgations of specifications would be helpful to the trade in general have here an excellent chance to exercise their ingenuity. Specifications have been drawn by some flooring manufacturers' associations. One of the defects of all of these specifications is that there is no official or semi-official method of definitely setting the grade of carnauba wax used, nor indeed are the methods for the actual determination of carnauba wax alone in the presence of other waxes well worked out. The Bureau of Standards has issued a specification covering what is known to the trade as "No. 3 North Country Wax." This wax is too dirty to use for water wax emulsion so a number of concerns use refined carnauba wax which is made by refining No. 3 North Country Wax, often apparently with the admixture of small amounts of other waxes. It might be helpful to this industry if the wax importers and the consumers of wax approached the Bureau of Standards and have them set definite standards for No. 1 and No. 2 carnauba wax.

Our industry has never been one to hide its light under a bushel. It has never been accused of understatement in its advertising literature. Even in an industry accustomed to hyperbole, there blossom forth advertising pamphlets of such a flagrantly exaggerated nature that even the case-hardened jobber is inclined to squirm. It seems to be going be-

* Report of Sanitary Products Committee, before 24th Annual Meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec. 1937.

# Lethane 384

## INSECTICIDES CONTROL CRAWLING INSECTS

THESE pests are resistant to the action of contact insecticides. Their control, therefore, requires an especially powerful killing agent.

Insecticides based on Lethane 384 have proved to be outstanding for this purpose. Laboratory tests established the high killing power of Lethane 384. Widespread usage over a number of years in institutional and industrial sprays and in control sprays employed by professional exterminators have fully established its effectiveness and economy under commercial conditions.

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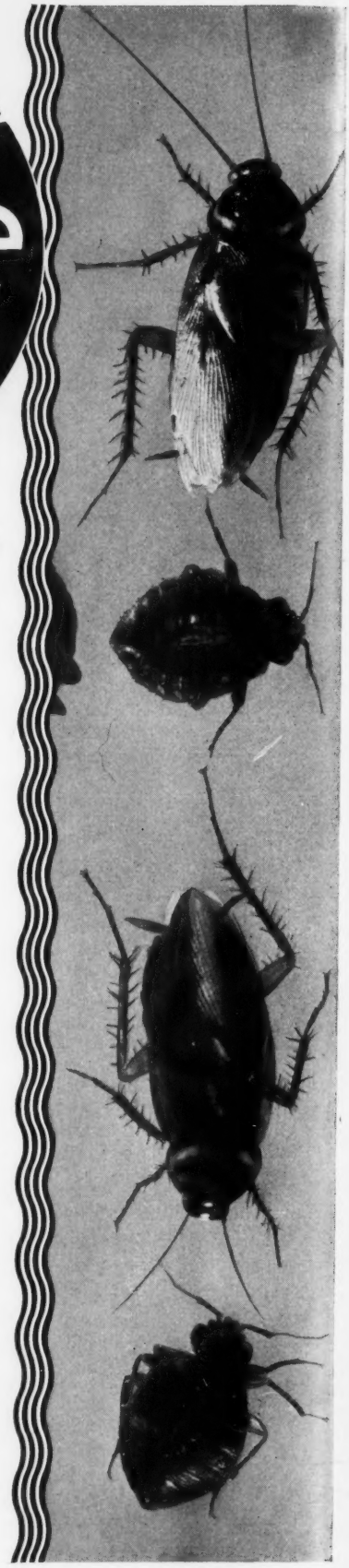
*222 W. Washington Sq.. Philadelphia, Pa.*

*Chicago • Kansas City, Mo.*

*Canadian Agent*, P. N. SODEN & CO., LTD., *Lachine, P. Q., Canada*



yond permissible bounds when a firm offers what is nothing more nor less than a floor oil under such terms as make it appear that you merely spray the material on the floor, — that it gives to floors a permanent and hard and water-sealed, chemical-sealed finish. There is, indeed, within this industry a need for some policing,— for the exercise of existing methods of control over unrestrained advertising.

A man who advertises floor oil in the manner referred to is not only hurting his direct competitor in the floor oil business, but he is hurting the whole industry,—and it would seem that it is within the province of an association of sanitary supply manufacturers and jobbers to take notice of such flagrant misrepresentation, and to complain, as a responsible body, to the Federal Trade Commission for action in such matters. Our industry through some committee or clearing house will judiciously investigate the occasional offender of this character and having established definitely the harmful effect such methods might have upon the industry to make the complaint in the name of the industry rather than in the name of a single concern. If we do not police our business to some extent we are inevitably inviting drastic regulations of our advertising. If we do clean up our own industry in this respect we will raise the industry appreciably in the eyes of our customers. It is not often that such control will have to be exercised. It is only suggested that it be used in the most flagrant cases where there appears to be definite harm to competition and to the industry as a whole. Whether or not such a committee might function under the auspices of this Association is something for consideration.

—— • ——

### W-B Chemical Co. Moves

W-B Chemical Co., soap research, has moved its offices from 521 Fifth Ave., New York, to 10 North Bleeker St., Mount Vernon, N. Y.

# Pine Oil Disinfectants

**By Melvin Fuld***

*Fuld Brothers*

IN the tentative schedule of the disinfectant specifications, it is noted at the end of the paragraph it states: "*Pine Oil Disinfectants*—Products made under this specification from good quality pine oil would normally have a germicidal coefficient of 4."

We believe that statistics could show that there is probably just as much Pine Oil Disinfectant Coefficient 3 sold. In taking our statistics we respectfully refer you to the magazine "Soap." In checking over the advertisements of the manufacturers of disinfectants who sell material in bulk to the trade, we note that every one of the manufacturers specify Pine Oil Disinfectants in Coefficients 3 and 4 and not 4 alone. We likewise note that in the "Soap" Blue Book, which is considered as being authoritative on its various discussions and listings, it states on Page 163: "Pine Oil Disinfectant usually is offered with a coefficiency of either 3 or 4 and the difference in the wholesale price between these two grades is about five cents per gallon."

If you will just observe the various advertisements of Pine Oil Disinfectants appearing in "Soap" magazine, as well as study the quotation from the "Soap" Blue Book, you will see that Pine Oil Disinfectants are usually quoted in 3 and 4 coefficients and we believe that it would be better if we, as an Association, in publishing disinfectant specifications, would make it so that it would be acceptable to what the majority of the industry purchases and believe that the statement as quoted in this book should read—"*Pine Oil Disinfectants* —Products made under this specification from good quality pine oil would normally have a germicidal value of 3 to 4."

We likewise desire to call your attention to the fact that we believe that it would be best if these specifications on Pine Oil would be published as quickly as they can be ratified, because there has appeared on the market in the past year a large number of products which are probably going to materially affect the stability of Pine Oil as a disinfectant. One concern is now selling a Coefficient 4 Pine Oil Disinfectant, which sells to the jobbing trade and has 18 per cent water. This manufacturer's advertising material reads that the jobber should take one-half water and one-half Pine Oil Disinfectant, and he would then have a clear Pine Oil Disinfectant, which he could successfully sell for a Coefficient 2 material. We believe that this type of material is not what is determined a Pine Oil Disinfectant, because it contains less than the 60 per cent usual requirements for a Pine Oil Disinfectant and the continuation of the sale of this type of material will unquestionably affect the sale of legitimate Pine Oil Disinfectants.

We also desire to call your attention to the fact that another very prominent manufacturing concern is now merchandising Pine Oil Disinfectants with various coefficients, all having higher than 10 per cent water as inerts, and we feel that the public has looked upon a Pine Oil Disinfectant as a product which contains at least 60 per cent by weight of steam-distilled Pine Oil soap and 10 per cent water, and feel that the publication of this standard set of specifications will do much to eliminate the sale of products which are definitely not Pine Oil Disinfectants.

* Report of Pine Oil Disinfectant Committee before 24th Annual Meeting, National Association of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

D&O
ESTABLISHED IN 1798

***BUGS are pests!***

***UNSCENTED or disagreeably scented insecticides are obnoxious***

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***PLEASING scents kill the "obnoxiousness"***

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| **Rose** | **New Mown Hay** |
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**Don't forget to mark your calendar for the Drug, Cosmetic and Allied Trades Banquet to be held at the Waldorf-Astoria, New York, on March 3rd. We hope to meet many of our friends at this important get-together.**

# DODGE & OLCOTT COMPANY

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**BOSTON : CHICAGO : PHILADELPHIA : ST. LOUIS : LOS ANGELES**

# A New Synthetic Insecticide

**By Nathaniel Tischler and Arno Viehoever***

*Kessler Chemical Corp.*

THIS report aims to establish the value of aromatic isothiocyanates as insecticides.† Although a number of these compounds have been found highly efficient against various insect pests, one, namely, alpha naphthyl isothiocyanate, has been selected because, in addition to its high insecticidal efficiency, it can be manufactured economically. In addition to the general physical and chemical properties of this isothiocyanate, the physiological effects, thus far observed, are herein discussed. The effects obtained in practical tests with various types of animals, insects and other arthropods, warm and cold-blooded, and land and aquatic forms are also briefly mentioned.

Although further research is being conducted, the properties and results already obtained with the aromatic isothiocyanates and with alpha naphthyl isothiocyanate in particular, indicate in a general way the range of usefulness, the extent of efficiency, the degree of safety to humans and domestic animals, and the possibility of their application as plant sprays.

## Physical Properties

The aromatic isothiocyanates do not at all possess the pungent odor of some of the lower members of the aliphatic isothiocyanates, which, because one of the members, allyl isothiocyanate, is present in considerable amount in the mustard plant, are called mustard oils. Pure alpha naphthyl isothiocyanate is a solid crystalline compound, with a melting point of 55.5°C. Viewed microscopically the crystals are seen to be prisms which have polarizing properties. The pure crystals are practically white; the commercial substance represents slightly yellowish granular masses and is virtually odorless, is tasteless, and, so far as known, is stable. When diluted in concentrations required for practical insect control, no odor at all is noticeable.

It is appreciably and readily soluble in hydrocarbons (for example, heptane, naphtha, kerosene, and white mineral oil) giving colorless solutions. At room temperature (20-22°C) in a commercial refined kerosene, its solubility is approximately 12 per cent by weight; in acetone, at least 50 per cent by weight; in carbon tetrachloride, at least 50 per cent by weight; and in olive oil, approximately 25 per cent by weight. At a temperature below freezing (—5°C), there is no congealing of a 2½ per cent solution in a refined kerosene. A 5 per cent solution does congeal at the same temperature but this liquefies in several minutes on being returned to room temperature, apparently with no effect on stability. Its solubility in water at 20-22°C. is 0.0002 per cent. By means of 0.1 per cent acetone it may be dispersed or dissolved in water to the extent of 0.001 per cent of alpha naphthyl isothiocyanate in the aqueous medium. Tested with litmus paper and with nitrazine paper, it was found to be neutral in both a refined kerosene solution (2 per cent alpha naphthyl isothiocyanate by weight) and in an aqueous suspension containing alpha naphthyl isothiocyanate at 1:10,000 and acetone at 1:500.

In experiments carried out by Dr. Ludwig Wasum the effect of ultra violet light was studied, using as a source of light a General Electric Sunlamp, Type S-1, which emits ultra violet rays from about 2800 A.U. up, with a small amount of rays below 2800 A.U. (midsummer sunlight rays from about 3000 A.U. up). This lamp has an output of 500 ultra violet units (midsummer noonday sunshine: 91 ultra violet units).

Alpha naphthyl isothiocyanate was irradiated in crystalline form, finely ground, and made up in 20 per cent acetone solutions. Twenty grams of material were spread on a piece of paper (6 x 9 inches), mixed well about every two hours and exposed 24 and 42 hours. Distance of the substance from the lamp: 16 inches. One hundred cc. of the acetone solution was kept under the lamp in an open beaker, and the acetone which evaporated was replaced by fresh acetone. Diameter of beaker: 3 inches; height of liquid: 1.25 inches; distance from lamp: 15-16 inches; Temperature: 39-41°C.

Upon irradiation, the crystalline materials as well as the acetone solution turn slightly darker. Only in the case of the acetone solution, exposed for 24 and 42 hours respectively, was there a very slight lowering of melting point (0.5°C). These experiments indicate that alpha naphthyl isothiocyanate for practical purposes may be considered stable in ordinary light. This conclusion is in conformity with the experience in the manufacturing plant.

## Chemical Properties

In chemical structure the esters of the isothiocyanic acid (isothiocyanates) are related to the esters of the thiocyanic acid (thiocyanates).

The formulas for isothiocya-

* From the Gross Laboratory for Biological and Biochemical Research, Philadelphia College of Pharmacy and Science. Address before 24th Annual Meeting, Natl. Assn. of Insecticide and Disinfectant Mfrs., New York, Dec., 1937.

† U. S. Patent 2,080,770; Canadian Patent 357,959; other domestic and foreign patents pending.

**TABLE 1**

**Percentage Kill of Houseflies in One Day**

| Date | Official Control Insecticide [1] | | 2% normal butyl carbitol thiocyanate [2] | | 1% alpha naphthyl isothiocyanate [3] + 0.03% pyrethrins [4] | |
|---|---|---|---|---|---|---|
| | % Dead | % Dead and Moribund | % Dead | % Dead and Moribund | % Dead | % Dead and Moribund |
| 3/3/37 ..... | 47 | 47 | 47 | 47 | 60 | 60 |
| | 62 | 62 | 63 | 63 | 67 | 67 |
| 3/8/37 ..... | 39 | 39 | 48 | 48 | 70 | 70 |
| | 51 | 56 | 42 | 44 | 52 | 52 |
| | 44 | 44 | 47 | 47 | 88 | 88 |
| | 64 | 67 | 65 | 65 | 80 | 83 |
| 3/10/37 ..... | 27 | 28 | 32 | 33 | 52 | 53 |
| | 41 | 44 | 24 | 33 | 68 | 70 |
| | 42 | 44 | 41 | 44 | 51 | 54 |
| | 48 | 48 | 40 | 45 | 51 | 56 |
| Mean ..... | 46.5 | 47.9 | 44.9 | 46.9 | 63.9 | 65.3 |
| Standard Deviation .... | 10.3 | | 11.8 | | 12.4 | |
| Coefficient of variation ..... | 22.4 | | 26.3 | | 19.6 | |
| Probable error of mean ..... | 2.2 | | 2.5 | | 2.7 | |
| Standard error of mean difference between unknowns and O.C.I. ..... | | | 2.51 | | 4.43 | |
| Relative grade of each insecticide | B | | B | | A | |

[1] Oil diluent for all insecticides: A refined deodorized kerosene. [2] A concentrated aliphatic thiocyanate diluted 1:24, giving a 4% solution containing 2% normal butyl carbitol isothiocyanate. [3] Alpha naphthyl isothiocyanate. [4] Pyrethrin content calculated from the guaranteed analysis of the commercial sample of the 19:1 Pyrethrum concentrate used, the stated analysis being 2 grams pyrethrins per 100 cc. [5] Standard error of mean difference $= \sqrt{\frac{\Sigma d^2}{\sqrt{n \cdot 1}}}$

Method of testing: Modified Peet-Grady method, tests being randomized in the order of testing and compared with O. C. I. in paired series. Amount of spray used in Peet-Grady chamber: 12 cc. Air pressure: 12 lbs. Temperature of testing insecticides: 76-80° F. Temperature of rearing insects: 78-82° F. Breeding medium: Bran and alfalfa fermented with yeast and malt. Age of flies: 5 days old. Sprayer: DeVilbiss No. 5004. (Official Peet-Grady type).

nates (I) and thiocyanates (II) are as follows:

R-N=C=S (I) R-S-C≡N (II)

It will be noted that the isothiocyanogen radical is the mirrored image of the thiocyanogen radical, the isothiocyanogen radical being attached by the nitrogen atom and the thiocyanogen radical being attached by the sulfur atom.

Though some of the aliphatic thiocyanates can be rearranged into the isomeric isothiocyanates by heating, it should be clearly kept in mind that the isothiocyanates and thiocyanates are chemicals with distinctly different reactions. Thus, upon reduction the isothiocyanates form the corresponding primary amines ($R\text{-}NH_2$) while the thiocyanates form the corresponding mercaptans (R-S-H).

## Physiological Properties

In the following account of experimentation conducted with a number of aromatic isothiocyanates, we believe that sufficient evidence has been accumulated to indicate that the aromatic isothiocyanates as a whole have high toxicity to various forms of life. The degree of toxicity to certain forms of life and the specific applicability of these compounds for insecticidal purposes is apparent from the information given. Because alpha naphthyl isothiocyanate has special commercial possibilities, most experimentation has been conducted with this material.

Experiments with Houseflies (*Musca domestica*): Preliminary tests with para phenylene di-isothiocyanate and with related aromatic isothiocyanates, using amounts of spray proportional to those used in the Peet-Grady Method, namely 12 cc per 216 cubic feet, showed that the action of these compounds was delayed so that although relatively high concentrations (2 per cent and more) were used, the knockdown in 10 minutes was low. For example, it was learned that about one hour exposures were necessary to give approximately 85-90 per cent knockdown with 1 per cent and approximately 95-100 per cent with 1½ per cent alpha naphthyl isothiocyanate.

Inasmuch as rapid paralytic effect is expected of a practical household insecticide for the destruction of such flying insects as houseflies, mosquitoes, and wasps, experiments were first conducted in which various amounts of pyrethrum extract were added to various organic isothiocyanates to learn what concentration is required to give 100 per cent knockdown in 10 minutes. As a result of many experiments by Goldschmidt and coworkers in Germany and by Tischler, it was decided that for practical purposes, 0.03 per cent pyrethrins should be used. Consequently most of the housefly tests were combinations of various isothiocyanates[1] in various concentrations, all containing 0.03 per cent pyrethrins in the finished spray.

In some early experiments, room tests were made but later a Peet-Grady chamber was used and many tests with houseflies, comparing toxic values with samples of various commercial sprays containing pyrethrum, pyrethrum and derris in combination, and an aliphatic thiocyanate have proved that all of the isothiocyanates at concentrations from ¼-1 per cent containing 0.03 per cent pyrethrins give effective control. Although most of the original tests were made with both para and meta phenylene di-isothiocyanates, all of the later tests were conducted with alpha naphthyl isothiocyanate. The results with this product have proved that a kerosene solution containing 1 per cent of the compound by weight in combination with 0.03 per cent pyrethrins is a very effective insecticide.

In Table I, data are presented

[1] Among the various aromatic isothiocyanates tested were: phenyl isothiocyanate; o-tolyl isothiocyanate; 3, 4 dichloro phenyl isothiocyanate; benzophenone para isothiocyanate; 4, chlor, 1, 3 phenylene di-isothiocyanate; meta phenylene di-isothiocyanate; para phenylene di-isothiocyanate; and alpha naphthyl isothiocyanate.

## TABLE 2

### Experiments with Clothes Moth Larvae. The Relative Toxicity, Rapidity of Action, and Deterrence from Feeding of "Iso" Compared with "Thio"

| Amt. cc. | Solvent | A. P. * | Concentration % | Concentration Mg/disc | "Iso" Time Days | "Iso" % Kill | "Iso" Feeding** | "Thio" Time Days | "Thio" % Kill | "Thio" Feeding | Solvent Alone Time Days | Solvent Alone % Kill | Solvent Alone Feeding |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1st Series | | | | | | | | | | | | | |
| 8.5 | Heptane | 2 hrs. | 0 | 0 | | | | | | | 38 | 0 | H |
| " | " | " | 0.25 | 1.25 | 4 | 100 | N | 38 | 80 | H | | | |
| " | " | " | 0.50 | 2.50 | 4 | 100 | N | 38 | 100 | H | | | |
| " | " | " | 1.00 | 5.00 | 4 | 100 | N | 11 | 100 | N | | | |
| " | " | " | 2.00 | 10.00 | 4 | 100 | N | 4 | 100 | N | | | |
| 2nd Series | | | | | | | | | | | | | |
| 0.05 | Deodorized Kerosene | None | 0 | 0 | | | | | | | 35 | 10 | H |
| " | " | " | 0.06 | 0.03 | 32 | 70 | H | 32 | 30 | H | | | |
| " | " | " | 0.12 | 0.06 | 32 | 50 | H | 32 | 60 | H | | | |
| " | " | " | 0.25 | 0.12 | 32 | 50 | H | 32 | 50 | H | | | |
| " | " | " | 0.50 | 0.25 | 32 | 70 | H | 32 | 40 | H | | | |
| " | " | " | 1.00 | 0.50 | 32 | 100 | N | 32 | 50 | H | | | |
| " | " | " | 2.00 | 1.00 | 4 | 100 | N | 32 | 70 | M | | | |
| " | " | " | 3.00 | 1.50 | 1 | 100 | N | 32 | 100 | N | | | |
| Series 3rd | | | | | | | | | | | | | |
| 0.05 | Deodorized Kerosene | None | 0.25 | 0.12 | 19 | 30 | H | 19 | 0 | H | 35 | 0 | H |
| " | " | " | 0.5 | 0.25 | 19 | 70 | H | 19 | 0 | H | | | |
| " | " | " | 1.0 | 0.50 | 19 | 30 | M | 19 | 0 | H | | | |
| " | " | " | 2.0 | 1.00 | 35 | 80 | N | 19 | 20 | H | | | |
| 4th Series | | | | | | | | | | | Deodorized 100% Kerosene | | |
| 0.10 | Deodorized Kerosene | None | 2.0 | 2.00 | 9 | 100 | N | 11 | 90 | N | 38 | 30 | H |
| 0.15 | " | " | 2.0 | 3.00 | 10 | 100 | N | 21 | 100 | N | 24 | 80 | H |
| 0.20 | " | " | 2.0 | 4.00 | 9 | 100 | N | 11 | 100 | N | 38 | 70 | H |

* Discs aerated for the period of time stated prior to start of test. A. P. = Aeration Period.
** Symbols used are as follows: N = no feeding; S = slight feeding; M = Moderate feeding; H = heavy feeding.

which show that the new insecticide at the concentrations of the active ingredients mentioned gave practical control of houseflies better than the Official Control Insecticide (O.C.I.) of the National Association of Insecticide and Disinfectant Manufacturers, the standard for evaluating unknown household insecticides. Since alpha naphthyl isothiocyanate is a representative of a group of compounds chemically related to the organic insecticides known as aliphatic thiocyanates, it was decided that it would be informative to compare at the same time its toxic value with a commercial aliphatic thiocyanate which was readily available.

Examination of the data shows that the O.C.I. gave an average kill of 46.5 per cent; 2 per cent normal butyl carbitol thiocyanate, an average kill of 44.9 per cent, and 1 per cent alpha naphthyl isothiocyanate (by weight) plus 0.03 per cent pyrethrins, an average kill of 63.9 per cent. Evaluating these results by the modified Peet-Grady Method[2], the O. C. I. and the 2 per cent normal butyl carbitol thiocyanate are designated as Grade B insecticides and the 1 per cent alpha naphthyl isothiocyanate combination spray as a Grade A insecticide.

Since the standard error of the mean difference between 2 per cent normal butyl carbitol thiocyanate and the O. C. I. is 2.51, a mean difference of at least 5 per cent kill would be required for statistical significance. Actually the mean difference in mortality is but 1.6 per cent; therefore the odds are that the thiocyanate spray is very nearly the same in toxicity as the O. C. I. Since the standard error of the mean difference between the 1 per cent alpha naphthyl isothiocyanate spray and the O. C. I. is 4.43, a mean difference of at least 10 per cent kill would be required for significance. The difference in mortality actually being 17.4 per cent, there is little doubt that the 1 per cent alpha naphthyl isothiocyanate spray is more toxic than the O. C. I. spray.

As a check on the value of the 0.03 per cent pyrethrins alone, two individual tests were run on 3/8/37 and 3/10/37 respectively, the pyrethrum concentrate being diluted 1:59. The knockdowns were 83 and 80 per cent respectively, the per cent kills being 14 per cent and 18 per cent. At this concentration of pyrethrins, the per cent kill in other housefly tests run at various times was consistently low.

No direct evidence appears to be present in the literature which gives comparative average kills of normal butyl carbitol thiocyanate and the O. C. I. However, indirect evidence that these two insecticides are approximately of the same toxic value against the housefly in 24 hour tests is given in two papers by Badertscher. Using the Peet-Grady Method, Badertscher[3] secured an average kill of 73 per cent for a pyrethrum spray containing 100 mgs. pyrethrins per 100 cc. and an average kill of 72 per cent for the normal butyl carbitol thiocyanate spray. Using the Campbell "Turn-Table" method, however, he found an average

[2] W. A. Simanton, "Evaluating Liquid Insecticides," Soap, Vol. 10, No. 4, p. 103, Oct. 1937.

[3] A. E. Badertscher, "Insecticide Tests Compared", Soap, Sept. 1936.

# M M & R INSECTICIDE NEWS

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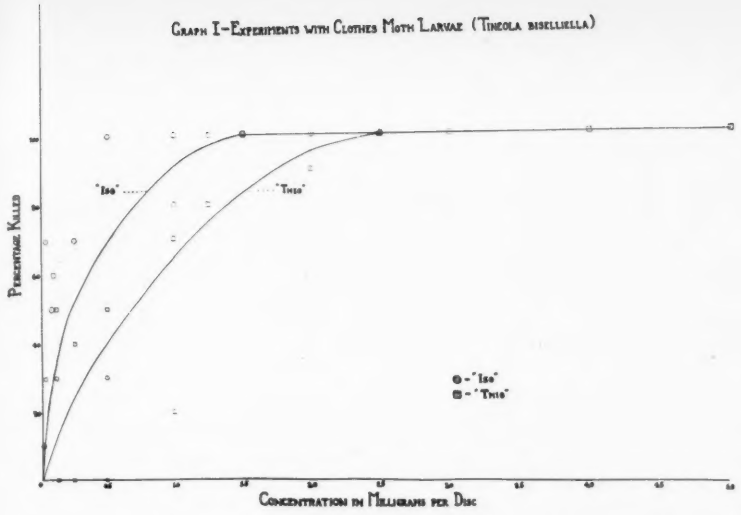


GRAPH I. Comparison between the toxicity of Alpha naphthyl isothiocyanate ("Iso") and Normal butyl thiocyanate ("Thio")

kill of 40 per cent for the pyrethrum spray and 50 per cent for the thiocyanate spray. In a second paper Badertscher reports[4] that in Peet-Grady tests a pyrethrum spray containing 100 mgs. of pyrethrins per 100 cc. gave average kills close to the average kills of the O. C. I., which was found by the Seil Method to contain approximately 90 mgs. pyrethrins per 100 cc. In four series the spray containing 100 mgs. pyrethrin per 100 cc. gave average kills of 51, 51, 44, and 52 per cent whereas for corresponding series the O. C. I. gave average kills of 53, 50, 51 and 53 per cent respectively.

Experiments with Clothes Moths Larvae (*Tineola biselliella*): Tests were conducted to determine the value of alpha naphthyl isothiocyanate in the control of clothes moth larvae. The method of procedure was to pipette definite quantities of hydrocarbon oil (heptane or refined kerosene of specifications used in household insecticides) solution of the chemical made up in various concentrations onto 1.25 inch diameter circular woolen discs, cut out with a die. The fabric used was a soft, double-napped eiderdown cloth. The average weight per disc was 337 mg. Following chemical treatment, the discs were aerated for different periods of time and then placed in 1½ inch diameter pill boxes, in which were placed 10, 15, or 20 larvae for each test. The larvae used were from one-half to three-fourths full grown, the size being approximately the same for each series.

Preliminary tests had shown that the cloth discs were thoroughly saturated when 0.5 cc. was used per disc, and therefore, in the preliminary work, this amount was used. In order to insure against toxic effects of the oil solvent, in the first tests, heptane, a very volatile hydrocarbon, was used after it was learned that no toxic effects were produced when such treated discs were exposed to the air for one to two hours. In later tests deodorized kerosene was used as the solvent, 0.05 cc. being the amount pipetted onto the discs. In addition, other tests were made using a constant concentration of alpha naphthyl isothiocyanate (2 per cent solution by weight) in deodorized kerosene but varying the amounts of solution from 0.10 cc.—0.2 cc. inclusive.

In Table 2 data are presented to show not only the relative toxicities of equivalent concentrations of alpha naphthyl isothiocyanate, for brevity designated as "Iso," and normal butyl carbitol thiocyanate, for brevity designated as "Thio," but also the relative rapidity of action and the relative deterence from feeding. These data for the various series of tests have been combined by translating all concentration values into terms of milligrams of chemical actually present per disc. Thus the data were usable to show trend curves of toxicity. These curves were given the best fit by plotting in accordance with the visual averages of the scatter points and are shown in Graph I.

Examination of Table 2 and Graph I reveals that "Iso" shows somewhat greater toxicity than "Thio" over the range of concentrations not giving 100 per cent kill. At 1 mg. per disc, "Iso" gives consistently high kill. With "Thio," however, almost 2 mg. per disc are necessary to give a correspondingly high kill. Examination of the tabulated data also shows that at the higher

**TABLE 3**

**Experiments with Clothes Moth Larvae. The Loss of Effectiveness in Treated Discs Aerated for Various Periods of Time**

| Amount (cc) | Solvent | Aeration Period | Concentration % | Concentration Mg/Disc | "Iso" Time Days | "Iso" % Kill | "Iso" Feeding | "Thio" Time Days | "Thio" % Kill | "Thio" Feeding |
|---|---|---|---|---|---|---|---|---|---|---|
| *Series 1* | | | | | | | | | | |
| 0.5 cc | Heptane | 2 hours | 0 | 0 | 38 | 0 | H | 38 | 0 | H |
| " | " | " | 0.25 | 1.25 | 4 | 100 | N | 38 | 80 | H |
| " | " | " | 0.50 | 2.50 | 4 | 100 | N | 38 | 100 | H |
| " | " | " | 1.00 | 5.00 | 4 | 100 | N | 11 | 100 | N |
| " | " | " | 2.00 | 10.00 | 4 | 100 | N | 4 | 100 | N |
| *Series 5* | | | | | | | | | | |
| 0.5 cc | Heptane | 3 days | 0.25 | 1.25 | 28 | 0 | H | 28 | 0 | H |
| " | " | " | 0.5 | 2.50 | 28 | 20 | H | 28 | 0 | H |
| " | " | 1 day | 1.0 | 5.00 | 6 | 100 | N | 28 | 80 | H |
| " | " | " | 2.0 | 10.00 | 6 | 100 | N | 13 | 100 | N |
| " | " | " | 3.0 | 15.00 | 6 | 100 | N | | | |
| *Series 6* | | | | | | | | | | |
| 0 cc | Heptane | 7 days | 0 | 0 | 23 | 0 | H | 23 | 0 | H |
| 0.5 | " | " | 1.0 | 5.0 | 23 | 10 | S | 23 | 0 | H |
| " | " | " | 2.0 | 10.0 | 2 | 100 | N | 23 | 0 | H |
| " | " | " | 3.0 | 15.0 | 2 | 100 | N | | | |

[4] A. E. Badertscher, "High Kill Insect Sprays", Soap, Sept. 1937.

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**TABLE 4**

**Experiments with Clothes Moth Larvae. The Relative Toxicity of Several Chemicals**

| Chemical | Amount (cc) | Solvent | Aeration Period | —Concentration— % | Mg/Disc | Time Days | % Kill | Feeding |
|---|---|---|---|---|---|---|---|---|
| "Iso" ..... | 0.5 | Heptane | 2 hours | 0.25 | 1.25 | 4 | 100 | None |
| "Iso" ..... | " | " | " | 0.5 | 2.50 | 4 | 100 | None |
| "Iso" ..... | " | " | " | 1.0 | 5.00 | 4 | 100 | None |
| "Thio" ..... | " | " | " | 0.25 | 1.25 | 38 | 80 | Heavy |
| "Thio" ..... | " | " | " | 0.5 | 2.50 | 38 | 100 | Heavy |
| "Thio" ..... | " | " | " | 1.0 | 5.00 | 11 | 100 | None |
| Naphthalene .. | " | " | " | 10.0 | 50.00 | 23 | 0 | Heavy |
| P-dichloro-benzene .... | " | " | " | 10.0 | 50.00 | 38 | 0 | Heavy |
| P-dichloro-benzene .... | " | " | " | 50.0 | 250.00 | 4 | 100 | None |
| "Iso" ..... | " | " | 1 day | 1.0 | 5.00 | 6 | 100 | None |
| "Iso" ..... | " | " | " | 2.0 | 10.00 | 6 | 100 | None |
| "Thio" ..... | " | " | " | 1.0 | 5.00 | 28 | 80 | Heavy |
| "Thio" ..... | " | " | " | 2.0 | 10.00 | 13 | 100 | None |
| P-dichloro-benzene .... | " | " | " | 50.0 | 250.00 | 28 | 0 | Heavy |

concentrations "Iso" gives somewhat more rapid kill than equivalent concentrations of "Thio" and shows a tendency to deter feeding to a greater degree at equivalent concentrations than does "Thio."

Reference to Table 3 shows that both "Iso" and "Thio" continue to give some protection when the discs are exposed to the air for a day or more depending on the concentration but that the effectiveness is less for a given concentration than when the discs are exposed to the air for only an hour or so. These data also show that neither "Iso" nor "Thio" can be considered true mothproofing solutions but are insecticidal agents against clothes moth larvae.

In Table 4, some data are given showing the value of "Iso" compared with the values for other chemicals. These data show that both "Iso" and "Thio" are far more effective than paradichlorobenzene and naphthalene when the fabric is treated directly.

Since 1 mg. per disc gives satisfactory control of clothes moth larvae when the sprayed woolen fabric is placed in a confined space and since the average weight per disc was found to be 337 mg., it appears that sufficient spray material should be used to deposit an amount of "Iso," approximately 0.3 per cent by weight of the cloth. If the concentration of the spray is selected as 2 per cent "Iso" in kerosene fractions these data appear to indicate that the spray should be used in the amount of 0.05 cc. per disc. This is calculated to be approximately 0.6 quart of a 2 per cent solution per 100 square feet of the particular fabric used,—a very light, soft, double-napped eiderdown cloth which is calculated to weigh approximately 8.6 lbs. per 100 sq. ft. Further research is planned to determine the relative toxicities of "Iso" and "Thio" when the larvae on the discs are sprayed directly and the treated discs are not placed in closed containers. In addition, practical control tests are planned.

When it is taken into account that much of sprayed material is held for some time in the fabric, it appears to be a safe assumption that the data already obtained indicate that for practical control from one pint to one quart of a 2 per cent "Iso" solution in kerosene or refined oils of this approximate fraction of crude oils per 100 square feet will give good control of clothes moth larvae present in the usual upholstery woolen fabrics, clothing, etc. Presumably for thick fabrics like rugs, correspondingly larger amounts of the spray are necessary.

Experiments with Carpet Beetles (*Attagenus piceus*):—The method of testing alpha naphthyl isothiocyanate was similar to that used in the case of clothes moth larvae. The larvae were selected so that for each particular series, they were approximately of the same size. One half to three quarter full grown larvae were used. The data are presented in Table 5 and in Graph II. Examination of the graph plotted by the best fit method reveals that there is no significant difference in toxicity between "Iso" and "Thio" against the more resistant carpet beetle larvae. Examination of the table also shows that at the higher concentrations "Thio" gives somewhat more rapid kill than "Iso" and, in addition, shows a tendency to deter from feeding somewhat greater than equivalent concentrations of "Iso."

Reference to Table 6 shows that at the concentrations tested neither "Iso" nor "Thio" continued to give protection when the discs were aerated for 2 days or more prior to testing. This fact again indicates relatively rapid volatilization of each insecticidal base and, therefore, a failure to give permanent protection when the concentration used is too low to give satisfactory destruction of the larvae. Just as in the case of clothes moth larvae, the "Iso" and "Thio" compounds are insecticides, not "mothproofing" agents.

In Table 7, some data are given showing the value of alpha compared with those for other chemicals. As in the case of the clothes moth data, these figures show that both "Iso" and "Thio" are far more effective than paradichlorobenzene and naphthalene.

Since 3 mg. per disc gives satisfactory control of carpet beetle larvae when the sprayed woolen fabric is placed in a confined space and since the average disc weighs 337 mg., it is presumed that almost 1.0 per cent by weight of the cloth ought to be used. For the particular woolen fabric used in the tests, approximately 0.15 cc. per disc or 1½ qts. of a 2 per cent "Iso" solution in kerosene fractions per 100 sq. ft. are suggested as the desirable amount to give satisfactory control. The data already obtained indicate that for the control of carpet beetle larvae in up-

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| Saybolt Color | 30 plus |
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| Initial Boiling Point | 380°F. |
| 10% | 394°F. |
| 20% | 402°F. |
| 30% | 404°F. |
| 40% | 410°F. |
| 50% | 414°F. |
| 60% | 420°F. |
| 70% | 426°F. |
| 80% | 435°F. |
| 90% | 450°F. |
| End Point | 510°F. |
| Flash Point | 175°F. |
| Fire Test | 180°F. |
| Copper Test | Negative |
| Acid Test | Negative |

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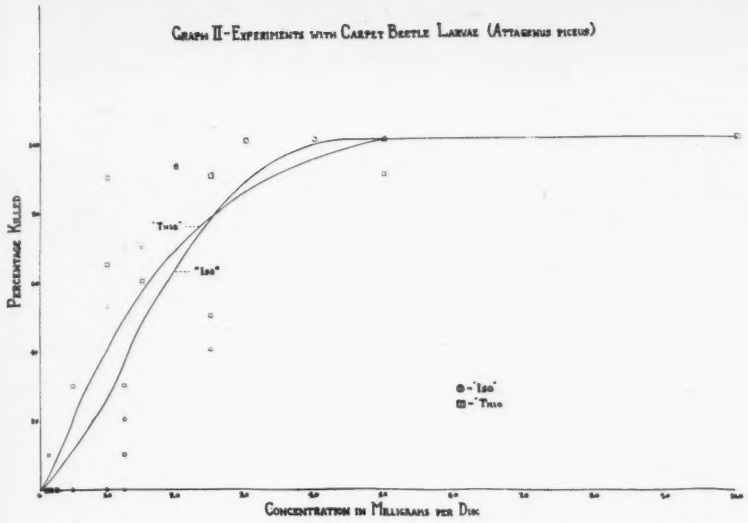


GRAPH II. Comparison between the toxicity of Alpha naphthyl isothiocyanate ("Iso") and Normal butyl thiocyanate ("Thio")

holstery, clothing, etc., approximately two to three quarts of a 2 per cent "Iso" solution in kerosene fractions per 100 square feet are required. To destroy carpet beetle larvae, about two to three times as much spray is required as to destroy clothes moth larvae.

Experiments with Goldfish:—The high toxicity of the aromatic isothiocyanates to goldfish is clearly indicated by the work of Goldschmidt and Martin in Germany. In their American patent, they present a table giving the lethal concentrations of eleven aromatic isothiocyanates in stated periods of time. In their application for the German patent they present comparative data on the toxicity of various compounds to goldfish. Refering to Table 8, (data from Goldschmidt and Martin), it is to be noted that both para and meta phenylene di-isothiocyanates gave lethal effects at a concentration of 0.00001 per cent in 6 hours as compared with rotenone in a similar concentration in 3-3½ hours. Alpha naphthyl isothiocyanate was found to be only one-tenth as toxic, giving lethal effects at 0.0001 per cent in 5 hours. The figures also indicate that the isothiocyanates gave more toxic effects to goldfish than did homologous thiocyanates.

*Plant Spray Experiments*:—The possibility of the use of aromatic isothiocyanates in the control of insect pests infesting plants is suggested by a few preliminary tests, but it must be emphasized that too little work has been done to evaluate adequately this possibility. In their American patent, Goldschmidt and Martin state that when a 0.05 per cent solution of m-phenylene di-isothiocyanate in water was sprayed on an apple tree infested with aphids[5] approximately 50 - 60 per cent

[5] In the application for the German patent, Goldschmidt and Martin refer to the "Blutlaus", possibly the rosy apple aphid (Anuraphis roseum).

**TABLE 5**
**Experiments with Carpet Beetle Larvae. The Relative Toxicity, Rapidity of Action, and Deterrence from Feeding of "Iso" Compared with "Thio"**

| Amount (cc) | Solvent | A. P.* | —Concentration— % | Mg/Disc | "Iso" Time Days | "Iso" % Kill | "Iso" F. | "Thio" Time Days | "Thio" % Kill | "Thio" F. | Solvent Alone Time Days | Solvent Alone % Kill | Solvent Alone F. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Series 1* | | | | | | | | | | | | | |
| 0.5 cc | Heptane | 2 hrs. | 0 | 0 | | | | | | | 47 | 0 | H |
| " | " | " | 0.25 | 1.25 | 47 | 0 | H | 47 | 10 | H | | | |
| " | " | " | 0.5 | 2.50 | 47 | 40 | H | 47 | 90 | M | | | |
| " | " | " | 1.0 | 5.00 | 47 | 100 | M | 3 | 100 | N | | | |
| " | " | " | 2.0 | 10.00 | 23 | 100 | N | 2 | 100 | N | | | |
| " | " | " | 3.0 | 15.00 | 14 | 100 | N | | | | | | |
| *Series 2* | | | | | | | | | | | | | |
| 0.5 cc | Heptane | 2 hrs. | 0.25 | 1.25 | 38 | 20 | H | 38 | 30 | H | 38 | 0 | H |
| " | " | " | 0.50 | 2.50 | 38 | 90 | S | 38 | 50 | H | | | |
| " | " | " | 1.00 | 5.00 | 38 | 100 | S | 38 | 90 | N | | | |
| " | " | " | 2.00 | 10.00 | 23 | 100 | N | 7 | 100 | N | | | |
| *Series 3* | | | | | | | | | | | | | |
| 0.05 cc | Deodorized Kerosene | None | 0 | 0 | | | | | | | 19 | 0 | H |
| " | " | " | 0.06 | 0.03 | 17 | 0 | H | 21 | 0 | H | | | |
| " | " | " | 0.12 | 0.06 | 17 | 0 | H | 21 | 0 | H | | | |
| " | " | " | 0.25 | 0.12 | 17 | 0 | H | 21 | 0 | H | | | |
| " | " | " | 0.50 | 0.25 | 17 | 0 | H | 21 | 0 | H | | | |
| " | " | " | 1.00 | 0.50 | 17 | 0 | H | 21 | 30 | H | | | |
| " | " | " | 2.00 | 1.00 | 17 | 0 | H | 21 | 90 | H | | | |
| " | " | " | 3.00 | 1.50 | 17 | 70 | H | 21 | 60 | H | | | |
| *Series 4* | | | | | | | | | | | | | |
| 0.05 | Deodorized Kerosene | None | 2.00 | 1.00 | 38 | 53 | H | 38 | 67 | H | Deodorized 100% Kerosene 38 | 0 | H |
| 0.10 | " | " | 2.00 | 2.00 | 38 | 93 | H | 38 | 93 | M | 38 | 0 | H |
| 0.15 | " | " | 2.00 | 3.00 | 30 | 100 | N | 4 | 100 | N | 38 | 0 | H |
| 0.20 | " | " | 2.00 | 4.00 | 26 | 100 | N | 4 | 100 | N | 38 | 40 | H |
| 0.25 | " | " | 2.00 | 5.00 | 13 | 100 | N | 4 | 100 | N | 38 | 67 | H |
| 0.50 | " | " | 2.00 | 10.00 | 8 | 100 | N | 4 | 100 | N | 8 | 70 | N |

* Aeration Period. Discs aerated for the period of time stated prior to start of test.

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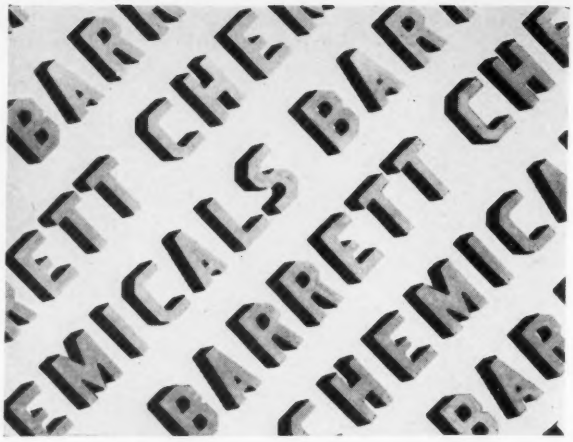


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## TABLE 6

### Experiments with Carpet Beetle Larvae. The Loss of Effectiveness in Treated Discs Aerated for Various Periods of Time

| Amount (cc) | Solvent | Aeration Period | Concentration % | Concentration Mg/Disc | "Iso" Time Days | "Iso" % Kill | "Iso" Feeding | "Thio" Time Days | "Thio" % Kill | "Thio" Feeding |
|---|---|---|---|---|---|---|---|---|---|---|
| *Series 1* | | | | | | | | | | |
| 0.5 cc | Heptane | 2 hours | 1.0 | 5.00 | 47 | 100 | M | 3 | 100 | N |
| " | " | " | 2.0 | 10.00 | 23 | 100 | N | 2 | 100 | N |
| " | " | " | 3.0 | 15.00 | 14 | 100 | N | — | — | — |
| *Series 5* | | | | | | | | | | |
| 0.5 cc | Heptane | 2 days | 1.0 | 5.0 | 22 | 0 | H | 22 | 0 | H |
| " | " | 7 days | 2.0 | 10.0 | 22 | 0 | H | 22 | 0 | H |
| " | " | 7 days | 3.0 | 15.0 | 22 | 0 | H | 22 | 0 | H |

## TABLE 7

### Experiments with Carpet Beetle Larvae. The Relative Toxicity of Several Chemicals

| Chemical | Amount (cc) | Solvent | Aeration Period* | Concentration % | Concentration Mg/Disc | Time Days | % Kill | Feeding |
|---|---|---|---|---|---|---|---|---|
| "Iso" | 0.5 | Heptane | 1-2 hours | 1.0 | 5.00 | 47 | 100 | Moderate |
| "Iso" | " | " | " | 2.0 | 10.00 | 23 | 100 | None |
| "Thio" | " | " | " | 1.0 | 5.00 | 3 | 100 | None |
| "Thio" | " | " | " | 2.0 | 10.00 | 7 | 100 | None |
| Naphthalene | " | " | " | 10.0 | 50.00 | 16 | 0 | Heavy |
| P-dichloro-benzene | " | " | " | 10.0 | 50.00 | 47 | 0 | Heavy |
| P-dichloro-benzene | " | " | " | 20.0 | 100.00 | 47 | 0 | Heavy |
| P-dichloro-benzene | " | " | " | 50.0 | 250.00 | 4 | 100 | None |

* Discs aerated for the period of time stated prior to start of test.

were dead after two days, with no attendant damage to foliage. They report similar control of greenflies[6] infesting an apple tree. In their application for the German patent, they state that a dusting powder containing 0.5 per cent 4-chlor-1,3, phenylene di-isothiocyanate was dusted on an elder bush thickly infested with apids. After two days, 90-100 per cent of the insects were dead.

Alpha naphthyl isothiocyanate was tried by us in the control of scale insects infesting the roots of the Sasteriana palm in a commercial greenhouse. Two plants were removed from their pots and the roots were thoroughly sprayed, following which the plants were again placed in the pots. Two other plants were similarly treated with a spray made up of oil and emulsifier alone. The diluted spray contained 0.1 per cent alpha naphthyl isothiocyanate and approximately 1 per cent white mineral oil and 0.45 per cent triethanolamine oleate soap. Excellent control of the scale insects was obtained with the isothiocyanate spray and very little control with the oil-emulsifier spray. The roots suffered some setback with the isothiocyanate spray but apparently the plants soon overcame the injury.

Experiments with Daphnia Magna:—In tests with Daphnia, we have found that the physiological symptoms and the degree of toxicity may be studied in a 0.1 per cent acetone aqueous medium. Thus in a concentration of 1:10,000, alpha naphthyl isothiocyanate causes marked depression of the respiratory, circulatory and locomotory systems. Locomotion ceased completely after 15 minutes, in a concentration of 1:10,000; after 40 minutes in one of 1:100,000; after 80 minutes in one of 1:1,000,000.

In an aqueous solution (1:500,000) without acetone, 100 per cent kill was obtained in 40-48 hours. Acetone alone, in 0.1 per cent culture water gave only slight narcotic effects from which the daphnia recovered in approximately 20 minutes.

In stability experiments, samples of the same lot, irradiated as mentioned above, and untreated, were tested on standardized female, 11 day old daphnia at 68-72° F. The sample, irradiated in acetone solution for 42 hours, showed slight delay in rate of toxicity, at a concentration of 1:500,000; containing 1:5000 acetone, no difference in toxicity at half the concentrations. In an aqueous acetone solution (1:5000) no toxic symptoms were observed.

Miscellaneous Tests:—Goldschmidt and Martin reported[7] that 0.0001 per cent aqueous solutions of para phenylene di-isothiocyanate killed Enchytraeus and Tubifex worms in 1½ hours. On heating meta phenylene di-isothiocyanate above 30-35°C., adult mosquitoes were killed in a few second and mealworms after approximately 15 minutes[7]. Against "kitchen roaches" (presumably Blatella germanica) these workers reported[8] that a 0.1 per cent aqueous emulsion of 4-chlor-1, 3 phenylene-di-isothiocyanate gave complete kill

## TABLE 8

### The Toxicity of Isothiocyanates, Thiocyanates and Rotenone to Goldfish*

| COMPOUND | % Conc. in Aqueous Media | Lethal Effects |
|---|---|---|
| Ethyl isothiocyanate | 0.001 | 2-2½ hrs. |
| Ethyl thiocyanate | 0.01 | not lethal |
| Phenyl isothiocyanate | 0.0005 | 1½ hrs. |
| Phenyl thiocyanate | 0.0005 | 4 hrs. |
| Allyl isothiocyanate | 0.001 | 1-1½ hrs. |
| m and p phenylene di-isothiocyanates | 0.000025 | 3-4 hrs. |
| m and p phenylene di-isothiocyanates | 0.00001 | 6 hrs. |
| alpha naphthyl isothiocyanate | 0.0001 | 5 hrs. |
| rotenone | 0.00001 | 3-3½ hrs. |
| nicotine | 0.001 | 15 minutes |
| nicotine | 0.0005 | Paralyzed in 10 mins.; recovered |

* Data from the application for the German patent by Goldschmidt and Martin.

[6] In the same application, the workers refer to the green "Blattlaus", apparently the apple-leaf aphis, (Aphis pomi).

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## TABLE 9
### The Effects of Oral Administration to White Rats of Alpha Naphthyl Isothiocyanate

| Rat. No. | Wt. | Sex | Conc. in olive oil solution | Amount Administered (cc) | Amount 100% "Iso" per kg. (gm) | Toxic Effect | Time until death |
|---|---|---|---|---|---|---|---|
| 1A* | 138 | M. | 20% | 2.50 | 3.62 | Dead | 21-24 hours |
| 3A | 83 | F. | 20% | 1.50 | 3.01 | Dead | 15 hours |
| 2A | 88 | M. | 20% | 1.00 | 2.27 | Dead | 21½ hours |
| 5D | 67 | F. | 10% | 0.67 | 1.00 | Dead | 90-112 hours |
| 1C | 86 | M. | 25% | 0.30 | 0.87 | None | ——— |
| 4D | 50 | M. | 10% | 0.40 | 0.80 | Dead | 24-26 hours |
| 2E | 98 | M. | 10% | 0.80 | 0.80 | Dead | 91 hours |
| 1B | 138 | M. | 25% | 0.50 | 0.72 | Dead | Approx. 30 hours |
| 4B | 68 | M. | 25% | 0.25 | 0.72 | None | ——— |
| 2C | 57 | M. | 25% | 0.15 | 0.66 | Dead | 28 hours |
| 3D | 49 | M. | 10% | 0.30 | 0.60 | Dead | 69 hours |
| 1E | 188 | M. | 10% | 0.94 | 0.50 | Dead | 70 hours |
| 2D | 82 | F. | 10% | 0.24 | 0.4 | Slight Tremor** | ——— |
| 2B | 138 | M. | 25% | 0.25 | 0.36 | Dead | Approx. 26 hours |
| 5B | 68 | F. | 25% | 0.12 | 0.36 | Slight Tremor** | ——— |
| 3C | 56 | M. | 25% | 0.07 | 0.31 | None | ——— |
| 1D | 85 | F. | 10% | 0.17 | 0.2 | None | ——— |
| 3B | 107 | M. | 25% | 0.10 | 0.19 | None | ——— |
| 6B | 52 | F. | 25% | 0.05 | 0.19 | None | ——— |
| 4C | 58 | F. | 25% | 0.04 | 0.15 | None | ——— |

* The letters following the numbers refer to the particular series of tests.
** Animals showed slight tremor for several hours, recovering completely later.

in 24 hours. In a single test to note the toxic value of para phenylene diisothiocyanate, we found that a 0.0002 per cent aqueous suspension, containing 0.1 per cent Igepon T as emulsifier, gave 85 per cent kill of almost full grown mosquito larvae in 17 hours.

Experiments with Warmblooded Animals:—1. White Rats. Reference to Table 9 shows the results obtained in experiments with rats. Of 20 rats receiving varying amounts of alpha naphthyl isothiocyanate by oral administration, by means of a stomach tube, after the rats had been starved for at least 24 hours, those receiving less than 0.3 gm. in olive oil per kilogram body weight showed no toxic symptoms. With the range of concentrations from 0.36 to 0.87 (inclusive) gms., seven animals succumbed and four animals either showed no symptoms or slight tremor followed by recovery. With the range of concentrations of 1.0 gm. and over, all animals died.

Although further experiments are planned in which a kerosene fraction solution of alpha naphthyl isothiocyanate will be used, olive oil was used as the solvent because it was felt that this would insure absorption of the insecticide. In this regard Lightbody and Mathews[9] report that olive oil and butter fat increased the toxicity of rotenone for guinea pigs and white rats. Accepting 0.3 gm. per kilogram body weight as the M. L. D. for alpha naphthyl isothiocyanates against rats, this compares with 0.6 gms. per kilo[10] for n-butyl carbitol thiocyanate, and with 0.025 gm. per kilo[9] for rotenone. Murphy[11] has compiled a table showing relative toxicities of various materials. Thus the M. L. D. of alpha naphthyl isothiocyanate falls within the range of organic thiocyanate compounds[10], classified as safe when used in the usual commercial insecticides. The mechanism of action of this new insecticidal base was reported before the joint session of the Pharmacy Section and the Medical Section of the A. A. A. S. in Indianapolis (Dec. 27, 1937).

Finely powdered alpha naphthyl isothiocyanate (80 mesh) placed on the eyes of rats caused no visible irritation. A 20 per cent olive oil solution, containing up to 10 mg. of the insecticide, caused only temporary partial closure of the eyes treated but no lasting inflammation or injury.

2. Dogs:—Four dogs were used in these experiments, one animal three successive times, and received, after starvation for at least 24 hours in each case, as much as 0.66 gm. per kg. body weight in olive oil. This was administered orally in gelatine capsules wrapped in a few instances in very thin slices of meat or by stomach tubes. No toxic symptoms or after effects were observed with the exception of one case of slight vomiting within two hours after treatment. Further experiments are in progress. The information thus far available indicates that the alpha naphthyl isothiocyanate is considerably safer orally to dogs than is normal butyl carbitol thiocyanate for Murphy[11] reports that Morse found that the M. L. D. for a 50 per cent solution in deodorized kerosene of normal butyl carbitol thiocyanate is 0.033 cc. per kilo.

3. Man:—Preliminary experiments appear to indicate that no skin irritation or effects are evident when alpha naphthyl isothiocyanate is applied in dilutions necessary to give effective control. A total amount of 0.06 cc. (three applications of 0.02 cc. each time during a period of about one hour in order to prevent run-off of the solution) of a 2 per cent solution of alpha naphthyl isothiocyanate in a refined kerosene was applied to an area approximately 2″ x 2″ on the forearm of five individuals. As checks in each case the same amount of refined kerosene alone was applied to the other arm. No skin irritation or other effects were produced in any case.

Additional evidence of lack of skin effect of insecticidal dilutions is the fact that Goldschmidt and coworkers in Germany and several persons in this country sprayed the insecticide in many housefly tests without any effects. In routine tests of this kind, the solution is often unintentionally poured on the hands or arms. Also, in picking up the flies or in entering the sprayed chamber,

[7] U. S. Patent 2,080,770
[8] Application for the German patent.

[9] Lightbody, N. D. and Mathews, J. A., "Toxicity of Derris and Cube," Journ. Ind. Eng. Chem. 28, p. 809, 1936.
[10] Von Oettingen, W. F., Hueper, W. C. and Deichmann-Gruebler, "Pharmacological Action and Pathological Effects of Organic Thiocyanates on Warm Blooded Animals. J. Ind. Hyg. Toxicol. 18, 310-36, 1936.
[11] Murphy, D. F., "Toxicity of Thiocyanates", Soap 13, 2, p. 96, 1937.

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considerable amounts of the material are unavoidably secured on exposed parts of the body,—the face, the neck, the arms. Also, in several tests the senior author was exposed to the spray during spraying without subsequent skin effects. Still additional evidence of safety to the skin is afforded by the experience of several chemists and chemical workers who though working with no special precautions with concentrated solutions, have suffered no ill effects from skin contact with the chemical. These experiments and experience support the belief that alpha naphthyl isothiocyanate can be used insecticidally at the required concentrations with safety to the skin. This conclusion assumes, naturally, that ordinary care is taken not to expose the skin and open wounds to prolonged contact with the insecticide.

Grateful acknowledgment is made to Dr. J. M. Kessler and Dr. Ludwig Wasum for their cooperation in various ways.

## Summary and Conclusions

1. All of the aromatic isothiocyanates tested have shown high toxicity to certain forms of life, particularly to those insect pests so far tested.

2. Alpha naphthyl isothiocyanate is a crystalline substance; therefore its uniformity can be assured.

3. It is a slightly yellow substance yielding colorless solutions. It will not stain fabrics, wallpaper, woodwork, etc., when used in a non-staining vehicle.

4. It is a practically odorless substance, leaving no objectionable odor or residue, in practical insecticidal dilutions. Also because of lack of odor, no perfume, which adds to the cost of the spray, is necessary.

5. It is an economical substance, the manufacture of which has been accomplished at comparatively low cost.

6. It is a neutral substance, and apparently does not affect tin or tinned iron used in metal containers.

7. So far as is known, it is a stable substance, not decomposed on standing, in light or dark, in the presence of air and at ordinary temperatures.

8. It is considerably more than sufficiently soluble in the usual insecticidal vehicles to give practical insect control and no secondary solvents are necessary. The solubility at normal temperature in a refined petroleum oil of specifications accepted by the N.A.I.D.M. is approximately 12 per cent; the solubility in acetone is at least 50 per cent.

9. It is an effective insecticide. Against the housefly, control is obtained by the use of a 1 per cent solution in combination with 0.03 per cent pyrethrins. Against clothes moth larvae, the data already obtained indicate that for practical control from one pint to one quart of a 2 per cent solution in kerosene per 100 square feet of the usual upholstery woolen fabrics will give good control. Against carpet beetle larvae, the data indicate that approximately double to triple the amount of a 2 per cent solution is necessary for practical control.

10. When observed on the transparent Daphnia, as test animals, at 1:10,000, marked depression of respiratory, circulatory, and locomotory systems are the chief physiological symptoms.

11. It is practically non-toxic to warm-blooded animals and apparently to the human skin when applied in dilutions necessary to give effective insect control.

12. The speed of action, where it is essential for practical purposes, can be greatly hastened by the addition of small amounts of pyrethrum extract. When quick "knockdown" is not essential, addition of pyrethrum extract or of any other rapid paralytic agent is unnecessary.

13. Its probable applicability in plant sprays is indicated by preliminary results.

14. Further research on the application of alpha naphthyl isothiocyanate and related compounds as insecticides and on their mechanism of action is being conducted.

## Fly Mortality Dosage

(*From Page* 103)

the same concentration diluted in a refined petroleum distillate produces a product that has a toxic content less than the official control insecticide. It may be again estimated graphically that with a refined oil as a diluent, to obtain a kill on male flies equal to that of the official control insecticide, about 110 milligrams of total pyrethrins must be used. A graphic estimate of the situation for female flies leads one to the same conclusion for female flies as has been made for male flies.

There has been a great deal of discussion of late on the adoption of standard specifications for liquid insecticides by the National Association of Insecticide and Disinfectant Manufacturers. Recently, most of the Association members received a copy of these with a request to comment upon them. It is interesting to note, on the basis of the total per cent dead regression line. Line R-3, how much leeway is given in the standard proposed. With the official control insecticide as a basis at 52.2 per cent kill (5.055 probit), one may add ten per cent kill to obtain 62.2 per cent kill (5.311 probit), and subtract ten per cent kill to obtain 42.2 per cent kill (4.803 probit). It may be seen, upon conversion of the corresponding logarithms to concentrations of total pyrethrins that in Class B will be included all insecticides with a refined oil as a diluent of total pyrethrins content about ninety-five milligrams to and including about 155 milligrams. The statistical procedure to follow in evaluating the results as suggested along with this grading system is highly inaccurate and inappropriate. It is proposed that the members of the Testing Committee give consideration to the methods developed by Dr. Bliss and which are shown entirely workable on fly data in the present paper. Using the kerosene-refined oil diluent data as an example, it is evident that an official method of evaluation based on Bliss's method will yield consistent results and an unbiased estimate either of a sample's toxic value or its toxic content. Moreover, it has been shown that such accuracy is within reach by using still fewer insects per test and less tests per sample than the 100 flies and ten tests per sample that have hithertofore been the accepted standard.

From Clopper and Pearson's (8) use of confidence or fiducial limits for the binomial distribution, it may be estimated that the per cent kills of 250 to 500 male flies in the twenty-five per cent to seventy-five per cent range arising from samples differing by twenty milligrams per 100 c.c. total pyrethrins content will be indicated different with a probability of five out of 100. The number of male flies to be used in the toxicity determinations of samples depends upon the range of susceptibility over which any two comparisons are made. From a similar estimate it is indi-

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**get you reorders because they are the most efficient and durable insecticide sprayers ever built. Supply your customers with the best.**

***The New Tornado Model 36***

***Automatic Time Switch—Volume Air Control***

***One Gallon Capacity, 1-3 H.P. G. E. Universal Motor***

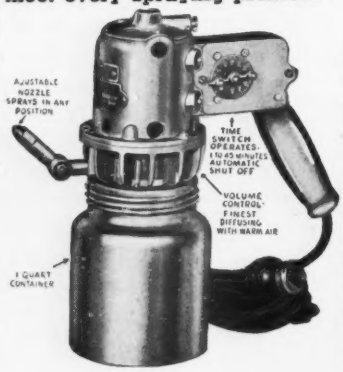
1/3 H.P. G.E. MOTOR
TIME SWITCH OPERATES 1 TO 45 MINUTES AUTOMATIC SHUT OFF
ADJUSTABLE NOZZLE SPRAYS IN ANY POSITION
VOLUME CONTROL FINEST DIFFUSING WITH WARM AIR
COMPRESSOR TYPE
1 GALLON CONTAINER

Here is the finest sprayer ever built. Similar to the now widely used Tornado Model 54 and retaining the automatic time switch, volume air control and adjustable nozzle features, the new Model 36 will spray a big volume of insecticide great distances in finest gas formation.

The patented principle of heating and compressing material does the trick. Just the sprayer you need for covering large distances and penetrating with the finest gas every possible source of insect existence.

Get the facts on this sprayer before buying!

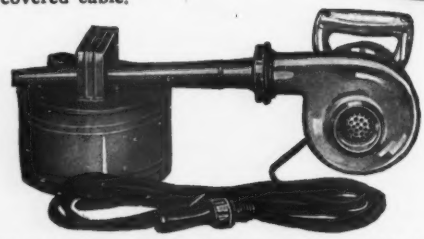
**Also most complete line of electric sprayers to meet every spraying problem.**


ADJUSTABLE NOZZLE SPRAYS IN ANY POSITION
TIME SWITCH OPERATES 1 TO 45 MINUTES AUTOMATIC SHUT OFF
VOLUME CONTROL FINEST DIFFUSING WITH WARM AIR
1 QUART CONTAINER

MODEL 54—
1 QT. CAPACITY

It features an automatic time switch set at any point from 1 to 30 minutes — sprays desired amount without any attention whatever — automatically shuts off. Can also be used for hand spraying. Adjustable nozzle can be set for spraying in any position. Also exclusive volume control adjustment permits spraying one ounce every two to four minutes with either fine or heavy spray. MODEL 53 same as Model 54 except does not have automatic time switch.

Model 50 Fan Type unit. A fine insecticide atomizer. Sprays distance of 8′ to 10′. 1/8 H.P. G.E. Universal Motor, 1 pint glass jar. 20′ of rubber covered cable.



Model 6 Fan Type unit. Will break insecticide into a very fine mist. Sprays 18′ to 20′. 1/3 H.P. G.E. Universal Motor. Norma Ball Bearings, 1 gallon metal container. This model is for larger institutions, warehouses, industrials, etc., and is also highly recommended for moth-proofing solutions. Write today for complete description and circulars.

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cated, if nearly 1,000 or more flies are used in each toxicity determination, that samples differing by a toxic content of ten milligrams per 100 c.c. total pyrethrins may be distinguished at the same level of significance. These data are not presented as the final word on this question for it is felt that if variations in fly susceptibility from cage to cage and day to day are eliminated, evaluations can be made even more precise. However, it is felt that a step has been made in the right direction.

### Conclusions

1. Dosage-mortality curves for various concentrations of total pyrethrins versus per cent male dead and per cent female dead using a modified Peet-Grady testing technique have been presented.

2. It has been indicated that the curves may be transformed to straight lines and treated statistically according to the methods described by Bliss (2), (3), (4).

3. The effect of diluent upon liquid insecticide evaluations has been examined.

4. It has been proposed that the Testing Committee give consideration to the method of Bliss in formulating a standard procedure of evaluating liquid insecticides.

It is a pleasure to acknowledge the aid of Professor George W. Snedecor in checking the statistical aspects of this paper as well as suggestions as to its presentation. Also, I am glad to acknowledge the assistance of Horace L. Caler who did most of the testing, the data of which has been presented.

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# New Standard Peptone

**By Dr. George F. Reddish***

*Lambert Pharmacal Co.*

THE Antiseptics Committee has concerned itself recently with the effect of peptone on the resistance of *Staphylococcus aureus* to germicides. A previous report on this subject was made to this Association by the Antiseptics Committee in June 1937 in which the results of a study of ten commercial peptones were given. This study proved again that Armour's Peptone is best suited for use in media employed for growing *Staphylococcus aureus* for use in testing antiseptics and disinfectants.

Armour's peptone has been and still is specified for use in media employed in the Food and Drug Administration methods for testing such products. Considering the proved importance of peptone in retaining the normal resistance of this test organism, it was thought desirable that the Antiseptics Committee make some arrangement with Armour & Company whereby some control might be exercised over the peptones made for this purpose. This proposal was made to the proper authorities in the Armour Laboratories and was enthusiastically accepted by those in charge of this division.

At the mid-summer meeting of the National Association of Insecticide and Disinfectant Manufacturers in June 1937 authority was given the Antiseptics Committee to represent and act for the Association in this project. The plan as outlined at that time was for the individual members of the Antiseptics Committee to submit to test various samples of peptone supplied by the Armour Laboratories and to determine which were most satisfactory for use in media used in testing antiseptics and disinfectants. It was then suggested that those peptones found satisfactory were to be reserved for this purpose. In addition it was suggested that these peptones should be specially labeled to show that they were tested and approved by the Antiseptics Committee of the National Association of Insecticide and Disinfectant Manufacturers. The Armour Laboratories have agreed to this program and have expressed a willingness to add a special label to such approved peptones, provided each lot had first been submitted to the Food and Drug Administration and also approved by them.

This plan has been in operation for the past six months. During this time a number of samples of peptone have been examined by the Committee to determine their suitability for this purpose. Of the lots of peptone tested, two have proved especially suited for use in broth for retaining the resistance of *Staphylococcus aureus* (as well as *Bacillus typhosus*), one of which was slightly better than the other. On the recommendation of the Antiseptics Committee a sample of this lot of peptone was sent to the U. S. Food and Drug Administration for their approval. If and when this peptone has been approved by the U. S. Food and Drug Administration this entire lot of peptone will be set aside for use in the testing of antiseptics and disinfectants.

As a result of this experience during the past six months, the Antiseptics Committee is more than ever convinced of the desirability and feasibility of this kind of control over the peptone which is used for this purpose. In the future such control will be simplified somewhat so that there will be a continuous supply of approved peptone. This will become a permanent responsibility of the Antiseptics Committee. The value of such control to members of our Association and others concerned is obvious.

* Report of Antiseptics Committee, before 24th Annual Meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec. 1937.

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**No. 10** A most efficient floor oil sprayer equipped with volume and atomization control. Applies floor cleaners and oil waxes smoothly and efficiently.

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1½ GAL. CAPACITY

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# News.....

### Organize Bennet Chemical

Bennet Chemical Co., Hagaman, N. Y., is the name of a new corporation recently formed for the manufacture of insecticides, disinfectants, oils and polishes, soaps and cleaners, and janitors' supplies. It is headed by K. V. Bennet, who has had a number of years' experience in the sanitary supply field. Dr. R. E. Kruger is vice-president, and Clinton S. Cole, attorney, is secretary-treasurer. The company maintains a crew of eight salesmen at the present time, in addition to an experienced laboratory staff. It is situated in a modernly equipped plant, formerly one of the Harrower Knitting Mills.

### Lehn & Fink Sponsor Contest

Lehn & Fink Products Corp., Bloomfield, N. J., is sponsoring a snapshot contest of children under 10 years of age, in which a grand prize of $500, and weekly prizes of $100 in United States Saving Bonds, are offered. The contest began Jan. 31, and will be publicized through Lehn & Fink's radio program featuring Dr. Allan Roy Dafoe, doctor of the famous Dionne quintuplets.

### Franklin Announces Sales Plans

Franklin Research Co., Philadelphia, has announced plans for a broad sales promotion campaign for water emulsion waxes during 1938. In the past the company has concentrated on sale of its waxes primarily in the floor maintenance material field. However, new uses have been found in the leather, paper, rubber and other industries, and the campaign has been planned to cover these new channels.

### McCormick Elects De Lamar

Conrado E. De Lamar, vice-president in charge of exports, McCormick Sales Co., Baltimore, has been elected to the senior board of directors of the parent company, McCormick & Co., of Baltimore.

### Entomologists Elect Davis

Prof. J. J. Davis, chief in entomology of the Purdue University Agricultural Experiment Station,

Prof. J. J. Davis

Lafayette, Ind., was elected president of the American Association of Economic Entomologists at the recent meeting of that group in Indianapolis, Ind. Prof. Davis has also taken a prominent part in the activities of the National Pest Control Association. He was in general charge of the recent Pest Control Operators' Conference held at Purdue University, January 17-21.

### State Chemical Expands

State Chemical Mfg. Co., sanitary supply manufacturer, Cleveland, has purchased a second plant, containing 15,000 square feet of floor space, in that city. The new plant is situated near railroad facilities, and enables the firm to buy all of its raw materials in tank cars. State Chemical plans an expansion in the manufacturing field in the near future. J. H. Zucker is president.

### Zonite Signs Stipulation

Zonite Products Corp., New York, has entered into a stipulation with the U. S. Federal Trade Commission agreeing to cease asserting that "Dr. Forhan's" toothpaste "goes deeper", until such a claim is established as a fact; also, to stop representing that "Dr. Forhan's" has long been in use by dentists everywhere to combat gum troubles.

### Announce Moth-Proof Wool

A new "rubberizing" process which would make wool moth-proof, has been announced by the British Wool Industries Research Association in a report published in England recently. The wool fibers are said to be coated with an extremely fine film of rubber which does not detract from the properties or appearance of the wool.

### Appoint Republic Chemical

Republic Chemical Co., New York, announces its appointment, in conjunction with W. E. Jordan & Bros., Brooklyn, as distributors in the United States of all products manufactured by the firm of N. H. Graesser, producers of cresylic acids and xylenols, Sandycroft, Chester, England.

### Adams Offers Stock Issue

V. P. Adams, Inc., sanitary products manufacturer, Jamaica, N. Y., has just issued a prospectus offering 5,000 shares of 6% first preferred stock, non-assessable and cumulative, at $10 a share. The money obtained will be used to finance the purchase of new equipment, and to expand the company's manufacturing facilities.

### Whitmoyer Appoints Agency

Whitmoyer Laboratories, Myerstown, Pa., disinfectants, have appointed Alfred F. Wilcox & Associates, Catasauqua, Pa., to handle their advertising. Business papers will be used.

### Rosenthal Appoints Dombo

H. H. Rosenthal Co., New York, chemicals and oils, announces the appointment of George F. Dombo to its staff. Mr. Dombo was formerly in charge of the drug department of Biddle Purchasing Co., New York, and prior to that with McKesson & Robbins in New York.

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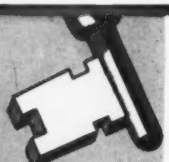
THE KEY TO YOUR *Germicidal Problems*

COMPARE THESE SPECIFICATIONS:

1. Aqueous vehicle.
2. Phenol co-efficient of 6. (E Typhi)
3. Low surface tension — NO PRECIPITATION.
4. Unaffected by light, age, heat or cold.
5. Spreads easily, highly penetrating.
6. Non-caustic in solution.
7. Non-toxic in solution.
8. Leaves no scar tissue.
9. Excellent results in skin infections, septic throat, trench mouth, athlete's foot, wounds, burns and in feminine hygiene.
10. Therapeutically efficient.
11. Styptic, astringent.
12. Scientifically prepared.



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Give your product an antiseptic plus . . . a "something extra" . . . with KOVAM.

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**Chemicals**

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NO RUBBING
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BUCKINGHAM WAX CORP.
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LONG ISLAND CITY NEW YORK

*Everything for the*
**Professional Exterminator**

***Here are a few of our specialties:***

**Restaurant Roach Powder**—non-poisonous . . . does not lose its strength when applied. Packed in 10, 25, 50, 125 and 300 lb. lots.

**Mouse Seed**—Packed in lots of 500 lbs., 100 lbs., 50 lbs. and 25 lbs.

**Rat Glue**—for making Rat Boards. We also supply Rat Boards already made up.

**Kill-A-Smell**—for destroying odor of dead rats.

**Bed-Bug Concentrate**—A special formula which has proven itself capable of dealing with the most troublesome infestations.

**Black Magic Paste**—Kills rats and mice when everything else fails.

**Exterminating Materials Co.**
710 Amsterdam Ave. New York, N. Y.

### New Black Wax

A new black gloss floor wax has recently been marketed by the Shawmut Specialty Co., 91 Bickford St., Boston, for use on black linoleum and rubber floorings. The company states that the new wax dries to a bright luster and is highly waterproof. The product is being recommended for use on rubber runners in office, hotel, etc. entranceways, and also for rejuvenating all black rubber and composition surfaces, and for auto running boards and tops. Shawmut makes a line of floor waxes, furniture and metal polishes, etc. for the trade.

### Issue Mosquito Control Booklet

The Nassau County Extermination Commission, Rockville Center, N. Y., has just issued a booklet with the title, "Mosquitoes, Their Life History and Control." Published as an educational aid for the residents of Nassau County, it contains among other articles the following: "Development of Mosquito Control" and "Methods Today." Copies are available on request.

Spink-Wawasee Hotel on Lake Wawasee, Indiana, where the 24th annual mid-year meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held on June 13, 14 and 15. Aerial view of the well-known hostelry with golf course immediately behind the hotel and lake in the foreground where sailing, motor-boating, fishing and swimming are at the hotel's front door. Horse-back riding and tennis are also available for those who want more strenuous sports. The June meeting of the Association is the first ever planned at a resort hotel. The meeting this year will run for three days, with business sessions each morning and a sports program arranged for the afternoons.

### Kenya Pyrethrum

Pyrethrum production in Kenya Colony, British East Africa, is steadily increasing, according to Major Ewart Grogan, famous East African pioneer now in London. As Kenya flowers have a 30 per cent higher pyrethrins content than the Japanese, it is believed that it will become one of the most valuable crops for Kenya in course of time, especially in view of the poor return received for Kenya's main crop, coffee.

### Asks Census Cooperation

The Bureau of the Census, Department of Commerce, Washington, has announced that schedules for the Biennial Census of Manufactures have been mailed to manufacturers throughout the country. The census will cover all manufacturing establishments in the United States making products valued at $5,000 or more during 1937. The schedule form consists of four pages which are to be filled in with description of plant, character of industry, time in operation and hours of labor, employees, cost of materials, etc. Since prompt publication of the figures will greatly enhance their value, the Department of Commerce asks the cooperation of manufacturers in returning schedules as soon as possible.

### Double B Signs Stipulation

Double B Products Co., Hartford, Conn., floor wax manufacturer, has entered into a stipulation with the U. S. Federal Trade Commission agreeing to refrain from advertising any sales plan for its products involving prize or premium offers. Nor will the word "free" be used, as descriptive of merchandise represented as free, when in fact the alleged free gift can be obtained only with the purchase of other merchandise.

### Ohio Food Supply Moves

Ohio Food Supply Co., sanitary products, has moved to 536 North High St., Columbus, Ohio. The former address was at 523 West Broad St., that city.

### N. Y. Wax Importers Elect

E. Strahl, of Strahl & Pitsch, New York, was elected president of the New York Wax Importers Association at the annual meeting held in that city last month. He succeeds W. F. Leary of William M. Allison & Co. Other officers elected were: R. E. Sievert, Frank B. Ross, Inc., vice-president; Charles Christman, Smith & Nichols, treasurer; and F. W. Steadman, Lenape Trading Co., secretary.

### Appoints American Cyanamid

American Cyanamid & Chemical Corp., New York, has been appointed exclusive distributor for K & M magnesia carbonate, oxide and calcined magnesia, products of Keasbey & Mattison Co., Ambler, Pa.

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ALL GRADES

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HIGH BOILING
TAR ACIDS

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***Question---***

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1. PIGMENT wax in colors (Red, Buff, Green, Brown, Black, Grey).
2. STAIN wax in Oak, Walnut, etc.
3. NO RUBBING WATERPROOF Liquid Wax that dries in 20 minutes to a shine.
4. PASTE, LIQUID, POWDERED WAX.
5. Packs in bulk or under private label.

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**WINDSOR WAX CO., Inc.**

53 PARK PLACE, NEW YORK

*For Samples, Prices, Information*

**T. G. COOPER & CO.**

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***Import and Spot Lots of***

**Cresylic Acid**
**Commercial Olive Oil**
**Olive Oil Foots**
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**Rapeseed Oil**
**Japan Wax**
**Carnauba Wax**
**Carbonate of Potash**
**Bicarbonate of Potash**
**S. American Vegetable Oils and Oil-Bearing Nuts**

# Insecticide Prices Reduced

QUOTATIONS of leading manufacturers of branded insecticides have just been announced for the 1938 season at levels well below those prevailing during the previous season. The new line of prices on "Flit," product of Stanco, Inc., New York, shows a range from $2.00 a dozen on half-pints and $3.20 a dozen on pints, up to $5.40 a dozen for quarts and $18.00 a dozen for gallons. As the dealer is given one dozen free packages with purchase of two dozen, the above prices must be reduced one-third to determine his actual cost. There is a wholesalers discount of 15 per cent in addition to this, making this buyer's net cost $1.81 per dozen pints. The same schedule prevails for "Black Flag," product of Black Flag Co., Baltimore.

Considerably lower quotations are reported for "Fly-ded," product of Midway Chemical Co., Jersey City, N. J. This company does not itself publish any quoted schedule of prices, but it was learned from other sources that on "Fly-ded" quotations as low as $1.44 per dozen pints are current.

Prices of Sinclair Refining Co. on "P D" have not been reduced. This concern does not offer half-pints, its smallest size being a 12-oz. can at $2.60 per dozen. Quarts cost the retailer $6.00 per dozen and gallons sell at $20 per dozen. A discount of 25 per cent to wholesalers applies on the above figures. Rex Research Corp. of Toledo also advises that its quotations are unchanged.

Reasons advanced for the sharp price reduction differ. One large producer stated that the special deal which was in effect last season resulted in such a large increase in sales that it seemed desirable to proceed further with the plan of lower prices in the hopes of an additional expansion of consumption. Another producer gave as his opinion the explanation that one of the newcomers in the field is trying to secure substantial sales volume for his product through the medium of a price cut.

A third explanation for the drop in prices comes from another well-informed source. This individual states that the recent drop in prices comes as the result of a decision on the part of one of the leading national sellers to price his product on a level competitive with cheaper grade products to which his concern was losing sales volume. It is indicated that inroads have been made into this concern's sales over the past few seasons by a competitive product. Over the past season this product was priced far under the better quality brands and it is this competitive advantage that one of the leading sellers is seeking to narrow by its recent price reduction.

Some producers of quality insecticides have followed the downward move with lowered schedules of their own, and others are holding to prices previously in effect. All advise that quality will not be lowered. One well-known insecticide manufacturer, much opposed to the recent price reduction, comments on it as follows:

"If we were to consider reducing our prices it would be necessary for us to do the following to accomplish this end, namely, reduce our advertising appropriations, reduce the quality of our merchandise and reduce our salesmen's earnings. I am firmly convinced and it is quite obvious that any three of these would be practically disastrous. I, for one, would rather maintain a high standard of quality, manufacture a presentable and salable item properly advertised and promoted, than to stand on the premise that all people are price minded."

Executives of Rochester Germicide Co., Rochester, N. Y. At a conference held recently in that city, plans were laid for the celebration this year of the 50th anniversary of the founding of the company. Front row, left to right: W. B. Eddy, general manager; C. W. Crowell, production manager; George B. Coapman, first salesman; D. N. Calkins, president and founder; C. P. Crowell, first vice-president and purchasing agent; H. W. Drury, manager, Boston district; W. S. Calkins, secretary-treasurer. Back row, J. A. Walsh, manager, New York district; W. G. Novesky, manager, Chicago district; H. G. Provost, manager, Rochester district; H. V. Ebert, manager, Cleveland district; H. F. Wittmaack, manager, St. Paul district; R. W. Uhlman, manager, Pittsburgh district; J. A. Parson, manager, Philadelphia district.

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ALPHA NAPHTHYL ISO-THIOCYANATE

A NEW SYNTHETIC INSECTICIDE

COLORLESS SOLUTIONS

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THE KESSLER CHEMICAL CORPORATION

DELAWARE AVE. & MIFFLIN ST. PHILADELPHIA, PA.

**A new floor wax**

for the janitor supply
and jobbing trades which is

***waterproof***

and which gives a

***high gloss***

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# ZIP-ON WAX

Dries very bright and becomes water resistant as soon as dry. Wax content guaranteed 100% Carnauba. Supplied in bulk, or with your label in any size container.

**Shawmut Specialty Co.**

91 Bickford St. Boston

# NEWEST IDEAS IN POWDER DUSTERS

Every model in Lowell's complete line of "tested merit" dusters is so perfect mechanically that even mixed dusts are discharged WITHOUT SEPARATION in a fine cloud exactly as compounded. Only the best in materials and workmanship go into the manufacture of these dusters which are backed by a name that has stood for top quality in sprayers and dusters for many years.

LOWELL GUARD DUSTER
Container 1½ x 3¼
Pump 1½ x 7
Lithographed tin

LOWELL GENERAL DUSTER
Container 3½ x 3½
Pump 1½ x 10, 1-12" Extension
Lithographed tin

SEND FOR LATEST CATALOG

**LOWELL MANUFACTURING CO.**

North Pier Terminal, Opp. Navy Pier, Chicago
CHICAGO, ILL. LOWELL, MICH.

# Always Uniform

Today . . . a year from now, your first order or your 100th order, NIMCO LANOLIN never varies. Write for a testing sample today,—note its light color, sweet odor and smooth texture. Try it and see the improvement.

Stocks Carried in CHICAGO • KANSAS CITY
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147 LOMBARDY ST., BROOKLYN, N. Y.

Refined FROM SELECTED WOOL GREASES

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ANHYDROUS and HYDROUS, U. S. P.

# Hold 2nd PCO Conference at Purdue University

THE second annual Pest Control Operators' Conference held at Purdue University, Lafayette, Ind., January 17-21, attracted an attendance of over one hundred operators who spent five days in learning more about insects and methods for their control. The conference was held under the general supervision of Prof. J. J. Davis, chief in entomology of the Purdue University Agricultural Experiment Station. Officers of the National Pest Control Association also assisted in arranging the sessions.

There were a number of talks on the common insect pests, covering such points as their classification and identification, insect structures, life cycles and economic importance. After acquainting the operator with the pests he may meet, the course then sought to tell him how to handle infestations of various types. Of special interest in this connection were five clinics at which questions were answered and instructions given on control of carpet beetles, clothes moths, cockroaches, fleas, bedbugs, rats and mice, termites and other insects.

An important feature of the conference was the banquet held the evening of January 20th in the Memorial Union Building. President Edward C. Elliott of Purdue University acted as toastmaster. It was announced at the banquet that the winner of the recent contest, sponsored by John Opitz, president of John Opitz, Inc., New York, to select a new name to replace the word "exterminator" was Dr. H. O. Deay of the entomology department of Purdue. It was the opinion of the committee that none of the names suggested is an effective substitute for the present title. They awarded half of the $50 prize to Dr. Deay, however, for his suggestion of the initials "P.C.O.". In making the award the judges stated that in their opinion the title "Pest Control Operator," not submitted by any of the contestants, has greater possibilities than any of the names suggested.

The remaining $25 of the prize award was given to Purdue University and Dr. Elliott announced that it would be used to start a loan fund for students majoring in entomology. A number of individuals at the banquet made further contributions to the fund which now totals $150.

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The rotenone content and ether extractives should be stated by dealers in derris products so as to facilitate calculation of mixtures. Derris powder for spraying should contain not more than 10 per cent of water, and 90 per cent should pass a 75-mesh sieve. The reaction in all cases should be neutral. Powdered derris for dusting should contain less than 2 per cent of water, and 90 per cent should pass a 125-mesh sieve. The volume weight may be 0.6 to 1.2. This allows for light powders for trees and heavy ones for ground plants. Kieselguhr as a filler gives the lightest mixture. The heaviness can be increased by kaolin, talc and gypsum. W. Spoon. *Ber. Afdeel. Handls-museum Koninkl. Ver. Koloniaal Inst.* No. 114, 9 pp. (1937).

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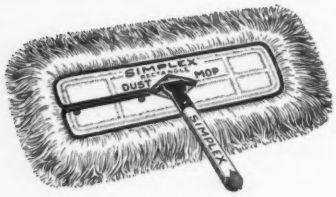
An ethylenic imine, e.g., ethylene- methylene- or butylethyleneimine, is used to destroy animal parasites. I. G. Farbenind. A.-G. French Patent No. 809,414.

Over one hundred pest control operators attended the second annual conference held recently at Purdue University, Lafayette, Ind.

## SIMPLEX DUST MOP — HOLZ-EM WAX APPLICATOR

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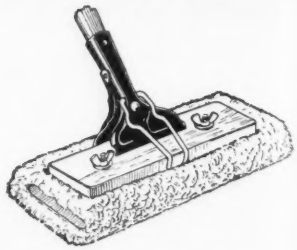

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## Exterminators Hear Talks

The January meeting of the Professional Exterminators Association was held at the Town Hall Club, New York, January 19. Following dinner members listened to a series of talks. Speakers included E. A. Macomber of American Cyanamid & Chemical Corp., New York, who discussed "Moths—Their Life Cycle and Methods of Control" and Dr. William S. Tonry, who spoke on "Fluorides—Their Use in Ant Control." N. K. Concannon, executive secretary of the organization, also spoke briefly on some of the opportunities which the exterminator has to develop business in the less competitive fields. It was announced by Milford H. Oachs, Ozane Co., New York, president of the Professional Exterminators Association, that two new members have recently joined the organization. Bussell Exterminating Co. and Pest Control Corp.

## Derris Root Insecticides

W. Spoon, a Dutch chemist attached to the Commercial Museum of the Colonial Institute at Amsterdam, Holland, recently published an article in *De Bergcultures*, a Holland publication, outlining the methods adopted by that institution for the standardization of Derris insecticides, both power and liquid spray forms.

Although the roots of **Derris elliptica** are to all appearances alike, says the writer, the final product obtained by processing these roots is not always uniform in quality and effect owing to the variation in rotenone content. It would consequently be of advantage to the consumer of this product, be he agriculturist or horticulturist, if he could acquire the derris insecticide, either in powder or liquid spray form, according to certain standards of composition. Statements regarding the "guaranteed rotenone content" are of little use to him in that he cannot deduce the exact dose or quantity therefrom. The following rules for the standardization of derris powder and liquid spray, based on practical experiments made by the Commercial Museum, will therefore be of interest.

On the basis of the rotenone content (in that rotenone is the most active component of the derris root), practical experience has shown that there are certain degrees of dilution which are best suited for the combating of insect pests. The most common grade of dilution in use is that containing one part of rotenone to 5,000 parts of water, the other dilutions being 1: 2,500 or 1: 10,000.

The following table of dilutions may consequently be given:

From 100 grammes (1 ounce dry weight) air-dried derris powder (that is, powder from the roots of species of the genus **Derris**, with a maximum of 10 per cent moisture) standardized at:

4% rotenone and 12% ether extract, 20 liters liquid spray (1: 5,000) may be prepared.

5% rotenone and 14% ether extract, 25 liters liquid spray (1: 5,000) may be prepared.

8% rotenone and 20% ether extract, 40 liters liquid spray (1: 5,000) may be prepared.

One ounce of these standard derris powders to half the quantities of water will then yield the practical dilution of 1: 2,500, while double the quantities of water give the dilution 1: 10,000.

Besides their composition, the fineness of these derris powders is also of great importance, in that too coarse powders can cause the obstruction of the spraying apparatus, especially the very small openings in the mouth of the spout or sprayer. Again, any extraction of the coarse powder by filtration, for instance, would detract considerably from the insecticidal property of the spraying liquid. Consequently, the fineness of the derris powder meant for spraying purposes must satisfy the following requirement; namely, at least 90% (ninety per cent.) must pass through standard sieve B 30 of the Netherlands Pharmacopoeia, that is, a sieve containing 30 x 3 openings per square centimeter.

The preparation of derris powder mixture is very simple, a certain quantity of derris powder being closely mixed with a neutral material, whereby the derris particles, uniformally distributed among and borne by the neutral material, is spread over the crop in a broad cloud. A heavy neutral or mixing material, such as gypsum for instance, would tend to keep the cloud low, while lighter material such as talc or porcelain clay would make the cloud rise, and a very light material such as diatomaceous (or infusorial) earth would result in a rising cloud. For further elucidation of the subject, the density (more correctly, the volumetric weight) of these materials is given below:

| | |
|---|---|
| Derris powder | 0.56 |
| Diatomaceous earth | 0.65 |
| China clay or porcelain earth | 0.83 |
| Talc | 0.12 |
| Gypsum | 1.33 |

These values apply to the neutral or mixing materials crushed so fine that each of them will pass through standard sieve B 50 (namely, 50 x 50 openings to the square centimeter) of the Netherlands Pharmacopoeia to the extent of more than ninety per cent, so that the final derris powder spray will also satisfy this requirement. On the basis of these values, the volumetric weight desired for the derris spray may vary from 0.6 to 1.2, with the understanding that for the spraying of tall trees a low volumetric weight is recommended, and conversely, a high weight if low lying crops have to be sprayed.

None of the mixing materials mentioned should give any reaction by themselves, and should therefore be indifferent or neutral, in the real sense of that term. Material such as chalk or lime, which may bring about an alkaline reaction, must not be present in the final mixture, the moisture content of which must not exceed 2 per cent. Practice has shown that the mixtures most suitable for use contain 0.5 per cent, 0.75 per cent and 1 per cent rotenone.

## B. H. Westcott Dies

B. H. Westcott, for twenty-two years a sales representative for S. B. Penick & Co., New York, and manager of their Buffalo office, died in that city, on Jan. 14.

## Trade Board Re-elects Magnus

Percy C. Magnus, president of Magnus, Mabee and Reynard, New York, was re-elected as president of the New York Board of Trade, at a meeting of the board of directors at the Hotel Vanderbilt recently.

## Anchor Hocking Officers

Anchor Hocking Glass Corp., Lancaster, Ohio, a consolidation of Hocking Glass Co., that city, and Anchor Cap Corp., Long Island City, N. Y., has elected the following officers: I. J. Collins, president; William V. Fisher, general manager; Thomas C. Fulton, vice-president.

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H-A Automatic and Hand-Power slabbers.

Proctor & Schwartz Bar Soap Dryers.

Blanchard No. 10-A and No. 14 Soap Powder Mills.

J. H. Day Jaw Soap Crusher.

H-A 6, 8 and 10 inch Single Screw Plodders.

Allbright-Nell 10 inch Plodders.

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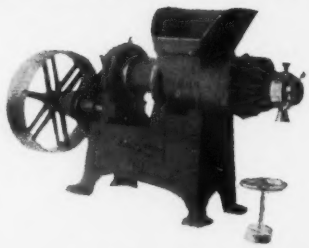

Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.

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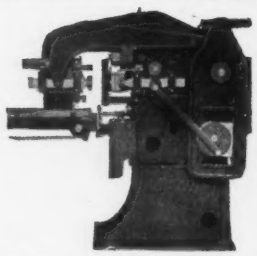

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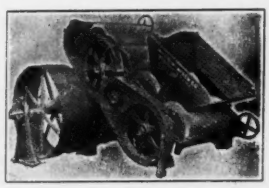

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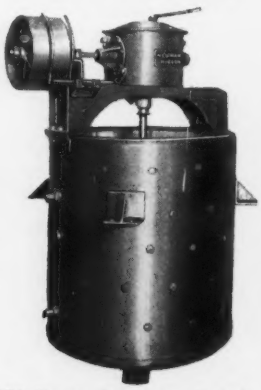

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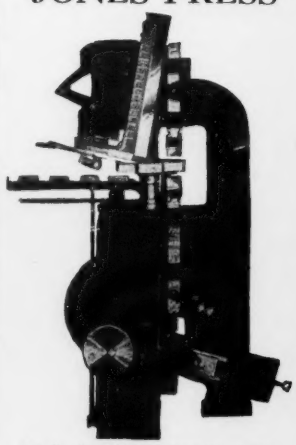

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